

**Boeing Realty Corporation's  
C-6 Facility • Los Angeles, California  
INSTALLATION OF TEMPORARY  
MONITORING WELLS AREA OF BUILDINGS 1 AND 2**

**VOLUME I**

**OCTOBER 1999**

*Prepared for:*

**BOEING REALTY CORPORATION**  
4060 Lakewood Boulevard, Sixth Floor  
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**K/J 984006.00**

**Kennedy/Jenks Consultants**

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## **1 INTRODUCTION**

This report describes the drilling and sampling of nine temporary groundwater monitoring wells in the area of Buildings 1 and 2 at the Boeing Realty Corporation (BRC) C-6 facility ("Facility"), and presents preliminary results from the sampling and analyses of soil and groundwater. The work was done as described in the June 1, 1998 letter "Revision 2 to Technical Work Plan," sent to Mr. James E. Ross of the California Regional Water Quality Control Board, Los Angeles Region (RWQCB). The June 1, 1998 revision was submitted to address comments in the 20 May 1998 letter from Mr. Ross to Mr. Chris Stoker of Integrated Environmental Services, Inc. (RWQCB File No. 100.315. See Appendix A.)

The "Facility" is located at 19503 South Normandie Avenue in Los Angeles. The "Facility" occupies approximately 170 acres, bounded on the north by 190th Street, on the east by Normandie Avenue, on the south by Montrose Chemical and residential properties, and on the west by Western Avenue, Capitol Metals, and the former International Light Metals facility (Figure 1).

Buildings 1 and 2 are located in the eastern part of the "Facility," about a quarter mile south of 190th Street and a few hundred feet west of Normandie Avenue. The two buildings cover an area of about 33 acres, and comprise approximately 1,500,000 square feet.

The objective of the program described in the above correspondence was to obtain preliminary soils and groundwater information at locations within and adjacent to the two buildings. These locations had not been explored in the previous site characterizations of the "Facility."

## **2 FIELD METHODS**

This section of the report describes the methods and procedures used in the drilling of the temporary groundwater monitoring wells, soil sampling conducted during the drilling process, well construction, well development, groundwater sampling, and analyses. The work was in accordance with the June 1, 1999 "Revision 2 to Technical Work Plan" (Appendix A).

### **2.1 Drilling and Soil Sampling**

Temporary groundwater monitoring wells were drilled at nine locations, designated TMW-1 through TMW-9 (Figure 2). The actual drilling locations were in the immediate vicinity of the proposed locations in the Technical Work Plan and were selected in the field by a Kennedy/Jenks geologist. The selected drilling locations were checked for possible underground utilities by: 1) a records review, 2) Underground Service Alert (USA) clearance, and 3) geophysical screening. The concrete slabs at locations TMW-1 through TMW-6 and TMW-9 were cored for access before drilling. TMW-7 and TMW-8 are located on asphalt pavement that can easily be penetrated by the drill bit.

The drilling contractor was West HazMat Drilling Corporation of Anaheim (License C57-554979). A truck-mounted CME-75 rig was used for TMW-2, and the remaining wells were drilled by a CME-75 rig mounted on a specially-constructed, limited-access tracked vehicle. All the wells were drilled using 8-inch (nominal O.D.) hollow-stem augers.

The drilling of each well was supervised in the field by a Kennedy/Jenks geologist (either a California-registered geologist or an experienced geologist working under direction of a California-registered geologist). The geologists prepared boring logs in the field based on observation of the drilling operation, auger cuttings and examination of the recovered soil samples. Soils were classified in the field according to the Unified Soil Classification System (USCS) and were recorded on Kennedy/Jenks' standard soil boring logs. The finished boring logs are attached in Appendix B. Where soil descriptions changed between samples, the contact plotted on the finished logs is placed at the top depth of the lowest sample.

Wells TMW-1, TMW-2 and TMW-4 through TMW-9 were drilled on June 28, 1998 through July 2, 1998. Drilling at TMW-3 was attempted on July 2, 1999, but the boring could not be completed. A void was found about two feet below the existing concrete slab. The void continued to a depth of about six feet and was underlain by an additional layer of concrete. Due to this unexpected condition, drilling was stopped. Records were reviewed further by personnel from Integrated Environmental Services, Inc. (IESI) and Kennedy/Jenks in an attempt to determine the nature of possible underground structures at this location. Although the further reviews were not totally definitive, the data suggested moving the drilling location 10 to 15 feet south. An alternate location was selected and TMW-3 was drilled on July 21, 1998.

Drive samples were collected during the drilling using a 2-inch I.D. "modified California" split-barrel sampler containing three 6-inch-long brass insert tubes. The sampler was driven by a 140-pound down-hole slide hammer. Drive samples were taken at 1 foot below the base of the concrete or asphalt and then at nominal depths of 5, 10, 20, 30, 40, and 50 feet below the ground surface (bgs). In order to obtain a sample at the capillary fringe, continuous drive samples were taken from 64.5 feet bgs until wet soils were encountered.

The 6-inch tube best indicating conditions at the capillary fringe was selected for laboratory analysis by the geologist from field examination of these samples. Sample depths, blow counts, and sample recovery are recorded on the boring logs in Appendix B.

Total depth of each boring was based on the water level estimated from examination of the soil samples. Borings were continued to about 20 feet below the estimated water table. It was necessary to add water while drilling below the water table to control heaving sand conditions. The water added was clean water from the onsite service; volumes added were recorded on the field logs.

The recovered soil samples were divided into three parts. One portion was processed for laboratory analyses, the second was used for field testing, and the third was used by the geologist for soil classification.

Each sample designed for laboratory analysis was sealed with Teflon end sheets and tight-fitting plastic caps secured with Teflon tape, and was promptly placed in an iced cooler for transfer to the analytical laboratory. The laboratory sample was generally the bottom tube, but others were used where needed to provide an intact, undisturbed sample for testing. The intervals tested are indicated on the boring logs in Appendix B. The samples were transferred under chain-of-custody to Orange Coast Analytical, Inc. of Tustin, California, a state-certified laboratory, at the end of each day. These soil samples were analyzed by the following methods as specified for groundwater samples in the 1 June work plan:

- Volatile organic compounds (VOCs) by EPA Method 8260
- TPH by EPA Method 8015 for gasoline and diesel
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270
- Pesticides by EPA Method 8080
- Title 22 metals by EPA Methods 6010 and 7471
- Hexavalent chromium (if total chromium exceeded 0.1 mg/kg) by EPA Method 7196.

Laboratory reports from the soil analyses are in Appendix C.

A part of each sample was used for field headspace testing. This soil was placed in a ziplock-type polyethylene bag, sealed, and left for several minutes to allow possible organic vapors to be released from the soil and to accumulate in the bag. The headspace in the bag then was tested with a PID to provide a qualitative measure of the organic vapors in the soil sample. The PID was calibrated to 1 ppmv Hexane. Headspace readings are recorded on the boring logs. The PID also was used to periodically monitor the air in the workers' breathing space during drilling.

Soil cuttings were stockpiled at a designated location on the "Facility." The soil stockpiles were placed on a layer of plastic sheeting and covered with plastic sheeting. Soil from each boring was stockpiled separately. Following receipt of laboratory results, clean soil stockpiles were used for backfill onsite and hazardous soils were manifested by BRC and disposed of at an appropriate offsite facility.

Augers, samplers, and other equipment contacting the in-place soils were decontaminated before each use. The augers were decontaminated by steam cleaning. Samplers were decontaminated by washing in a solution of Alconox (or an equivalent) in clean water, and

then rinsing twice in clean water. The water from decontamination was contained in Department of Transportation (DOT) 17H/17E drums that were marked accordingly, stored at a designated location on the "Facility," and appropriately manifested by BRC and disposed offsite based on laboratory results.

## **2.2 Well Installation**

A temporary groundwater monitoring well was constructed in each borehole promptly after drilling was completed. The wells were constructed of 2-inch Schedule 40 PVC casing and screen; typical construction is shown in Figure 3 and well dimensions are summarized in Table 1.

Wells were installed through the hollow stem augers. Each well was constructed with 20 feet of 0.010-slot screen. The screen and casing were suspended in the borehole so that 15 feet of screen was below the estimated water table. A sand pack of Lone Star No. 2/12 sand then was placed around the screen as the augers were retracted. Sand was placed to about 2 feet above top of the screen. The well then was surged until the sand pack showed no further settlement. Sand was added as needed to keep the top of the filter pack about 2 feet above the screen.

A minimum 2-foot layer of medium bentonite chips was placed as a sanitary seal above the sand pack. The bentonite was hydrated in place with clean water; the volumes of water used were recorded on the field logs.

A second bentonite seal was used at the ground surface. A sandbag was placed around the well casing as a base and the annulus was filled with bentonite chips to 1 to 2 feet below the surface.

The well casings were cut off about 1 foot above the ground surface and fitted with locking caps. Drums and caution tape were used for temporary surface protection.

The temporary monitoring wells were surveyed for vertical and horizontal control by a California licensed surveyor. Vertical control was established for the reference mark at the top of the well casing and for the adjacent ground surface. Elevations were surveyed to an accuracy of 0.01 foot relative to mean sea level, as done with the existing well network. The survey report is attached in Appendix D.

## **2.3 Well Development**

The temporary groundwater monitoring wells were developed no sooner than 48 hours after installation. Wells TMW-1, TMW-2, and TMW-4 through TMW-9 were developed on 6 through 8 July. Well TMW-3 was developed on 24 July. The well development records are attached in Appendix E.

The wells were developed by West HazMat Drilling Corporation under the direction of a Kennedy/Jenks geologist. Water levels and total well depth were sounded before beginning development. The wells then were bailed using a cable winch on a limited-access drilling rig. Because of the large volume of water bailed from the wells, additional surging was not needed. Most of the wells were bailed using a 7-foot stainless steel bailer. A PVC bailer was used to develop well TMW-9 because of a slight bend in the flexible 2-inch PVC casing that prevented the rigid 7-foot stainless steel bailer from reaching the total depth.

The bailers and the part of the hoist cable that could contact the well water were decontaminated by steam cleaning before use in each well. The water from decontamination and the water bailed from the wells was contained in DOT 17H/17E drums that were marked accordingly, stored at a designated location on the "Facility," and appropriately manifested by BRC and disposed offsite based on laboratory results.

As specified in the work plan, the volume of water removed from the wells during development was at least the sum of: 1) three wetted casing volumes, and 2) three times the volume of water added during drilling and well construction. Because of the need to add water during drilling, the resulting volumes were rather large for 2-inch wells--80 to 110 gallons, or more than 25 wetted casing volumes. Well development also was continued until measurements of field parameters were seen to stabilize, as specified in the 1 June 1998 work plan:

- Temperature within 0.5 degree Celsius
- Specific conductance within 10 percent
- pH within 0.5 pH units.

Because the wells were developed by bailing, turbidity did not decrease below the 50 NTU level specified in the work plan. The surging action of the bailer causes turbulence in the water column and stresses the sand pack, thereby keeping fines in suspension. Considering the large volume of water bailed from each well, it was anticipated that turbidity would be less than 50 NTU when the wells were later purged and sampled by submersible pump. This proved true for all wells except TMW-1, where turbidity remained slightly above 50 NTU, as explained in the next section.

The full water volume specified for well development was not bailed from TMW-9. The casing in this well was bent such that bailing was particularly slow. The well was bailed for about three hours, removing 53 of the specified 84 gallons, and temperature, specific conductance, and pH were seen to stabilize. Bailing then was stopped and the remainder of the specified development volume was added to the volume purged before sampling.

## **2.4 Groundwater Sampling and Analysis**

Groundwater samples were collected from the temporary monitoring wells no sooner than seven days after well development. Wells TMW-1, TMW-2 and TMW-4 through TMW-9 were sampled on July 14 and 15, and TMW-3 was sampled on 31 July. Field data were recorded on the standard groundwater monitoring forms (Appendix F).

Before purging and sampling each well, depths to water were measured to within 0.01 foot using an electronic water level meter. An additional round of water level measurements was made on the afternoon of 15 July, including the temporary groundwater monitoring wells sampled previously and the pre-existing (permanent) monitoring wells that were accessible for measurement. These water levels are summarized in Table 2 and were used to prepare the contour map in Figure 4.

The wells were purged and sampled using a Grundfos RediFlo2 pump and single-use polyethylene tubing. The pump, motor lead, safety cable, and tubing were decontaminated before use in each well. The exterior of the pump and the other equipment contacting the well water were washed with a solution of Liquinox in clean water, rinsed with clean water,

and then rinsed with distilled water. The pump, with tubing attached, then was placed in a solution of Liquinox in clean water and was run for several minutes to clean the interior of the pump and tubing. The pump then was rinsed by circulating clean water for several minutes. For a second rinse, at least 2.5 gallons of distilled water were pumped through the pump and tubing.

The pump was set at a nominal depth of 75 feet for purging and sampling in each well. The wells were purged of at least three wetted casing volumes by pumping at a slow rate, typically not exceeding 0.5 gallons per minute. Samples of the purged water were tested periodically for the field parameters of temperature, specific conductance, pH, and turbidity. Purging was continued until at least two consecutive measurements of these field parameters were within the ranges specified in the 1 June work plan:

- Temperature within 0.5 degree Celsius
- Specific conductance within  $\pm 10$   $\mu\text{mhos/cm}$  if less than 800 or  $\pm 50$  if more than 800
- pH within 0.1 pH units
- Turbidity less than 50 NTU.

The field parameters were within these ranges for seven of the nine wells. The two remaining wells were sampled after purging five wetted casing volumes, per the work plan. TMW-1 was sampled after purging about six well volumes and after temperature, specific conductance, and pH had stabilized within the above ranges. However, turbidity was slightly above the specification, being measured at 80 and 67 NTU, before and after sampling, respectively. TMW-5 was sampled after purging five well volumes when temperature and specific conductance continued to fluctuate beyond the ranges specified above. However, the field parameters measured before and after sampling were within the specified ranges.

After the purging was completed, the pumping rate was slowed to a rate suitable for filling sample containers, and samples were collected for the parameters specified in the work plan:

- VOCs by EPA Method 8260
- TPH by EPA Method 8015 for gasoline and diesel
- SVOCs by EPA Method 8270
- Pesticides by EPA Method 8080
- Title 22 metals by EPA Methods 6010 and 7471
- Hexavalent chromium (if total chromium exceeded 0.1 mg/L) by EPA Method 7196.

The samples were collected in order of decreasing volatility, per the EPA Technical Enforcement Guidance Document (EPA, 1986) and as listed above. The samples for metals analyses were filtered in the field using Gelman 0.45  $\mu\text{m}$  in-line filter capsules.

One additional measurement of field parameters was made after the samples were collected. After all sampling and field measurements were completed, the pump was removed from the well and the polyethylene tubing and filter capsules were discarded. Water from the decontamination and well purging was contained in DOT 17H/17E drums

that were marked accordingly, stored at a designated location at the "Facility," and appropriately manifested by BRC and disposed offsite based on laboratory results.

The groundwater samples were placed promptly in an iced cooler. The samples were transferred under chain-of-custody to Orange Coast Analytical, a state-certified laboratory, at the end of each day. Laboratory reports from the groundwater analyses are in Appendix G.

## **2.5 Quality Assurance**

Blank and duplicate samples were used for field quality assurance. One travel blank was used with each set of samples. The travel blank is a vial of contaminant-free water that was prepared by the laboratory and transported with the samples. The travel blank was analyzed by EPA Method 8260 as a check on possible contamination of the samples by contact with volatile organic compounds during transport, storage, or handling. No compounds were detected in these samples.

Equipment rinsate blanks were used as a check on decontamination of the sampling equipment. During the drilling and soil sampling, rinsate blanks were prepared by pouring distilled water over and through a sample barrel, with insert tubes, after it had been decontaminated for use. The water was collected directly in a 40-ml VOA vial and tested for VOCs by EPA Method 8260. These blanks were taken daily at random times selected by the field geologist. No compounds were detected in these rinsate blanks.

Equipment blanks also were prepared during the groundwater sampling. These blanks were prepared by placing the sampling pump, after decontamination, in a new container of distilled water and pumping the distilled water through the polyethylene tubing into a set of sample containers. The groundwater equipment blanks were analyzed for all the parameters specified for the groundwater samples. The sample containers were filled in the same order and manner as the groundwater samples, except that the distilled water was not filtered. No compounds were detected in the blank water samples.

One duplicate groundwater sample was collected during the sampling of TMW-8 on July 15. The duplicate sample was analyzed for all the specified groundwater parameters as a check on sampling and analytical precision. This additional set of sample bottles was filled along with the primary sample, following the same procedures and order. The duplicate was assigned a false sample number and time, and was submitted blind to the laboratory. Results from the duplicate samples were in close agreement with the corresponding groundwater sample.

### **3 HYDROGEOLOGIC SETTING**

This section provides a brief summary of regional and local geology and hydrogeology.

#### **3.1 Regional Hydrogeology**

The geology and hydrogeology of the region surrounding the "Facility" were determined mainly from reference to reports published by the U.S. Geological Survey (USGS) (Poland and others, 1959) and the California Department of Water Resources (DWR), (1961). Reference also was made to previous reports prepared by Kennedy/Jenks for the "Facility."

The "Facility" is located on a broad plain at an elevation of approximately 50 feet MSL. The DWR and USGS define this area as the Torrance Plain, a Pleistocene-age marine surface and a subdivision of the Coastal Plain of Los Angeles and Orange Counties. The ground surface in this area is generally flat with an eastward gradient of about 20 feet per mile (less than one-half percent). Surface drainage is generally toward the Dominguez Channel, about a mile to the east. The Dominguez Channel, in turn, flows southeastward toward the Los Angeles and Long Beach Harbors in San Pedro Bay.

The surface sediments in this area are assigned to the Lakewood Formation (DWR, 1961), a unit defined to include essentially all of the upper Pleistocene sediments in the Los Angeles Coastal Plain area. The Lakewood Formation includes deposits of both marine and continental origin, representing stream transport and sedimentation along the Pleistocene marine plain. In the "Facility" area, the Lakewood Formation may include the Semiperched Aquifer, the Bellflower Aquiclude, and the Gage Aquifer. The Semiperched Aquifer includes deposits described as Terrace Cover (Poland et. al., 1959). Extent and thickness of this unit is not rigorously defined, but appears to include the near-surface water-bearing units in the area of the "Facility." The Bellflower Aquiclude is described as a heterogeneous mixture of continental, marine, and wind-blown sediments, mainly consisting of clays with sandy and gravelly lenses (DWR, 1961). The base of the Bellflower Aquiclude is about 100 feet below sea level (about 150 feet bgs) in the "Facility" area. The Gage Aquifer is a water-bearing zone of fine to medium sand and gravel confined by the Bellflower Aquiclude. It is reported to be about 40 feet thick in the "Facility" area and is described as being of secondary importance as a water source (DWR, 1961).

The Lakewood Formation is underlain by the Lower Pleistocene San Pedro Formation, which continues to about 1,000 feet in depth in the "Facility" area. Major water-bearing zones within the San Pedro Formation are the Lynwood Aquifer and the Silverado Aquifer. These are reported to be at depths of about 300 and 500 feet, respectively, in the "Facility" area (DWR, 1961). The Silverado is an important groundwater source in the Coastal Plain and is considered a source of drinking water (DWR, 1961).

#### **3.2 Groundwater at the "Facility"**

The uppermost groundwater at the "Facility" appears to be under water-table conditions at depths of 60 to 70 feet. Regionally, this uppermost groundwater is probably considered part of the Semiperched Aquifer discussed previously and is separated from the deeper zones by the Bellflower Aquiclude (Kennedy/Jenks, 1997b).

Monitoring wells at the "Facility" are completed in two zones. Most of the wells are completed at or near the semi-perched aquifer, with screened intervals ranging from 60 to

90 feet bgs. Two deeper wells, WCC-1D and WCC-3D, are completed in a deeper zone with screened intervals from 120 to 140 feet bgs (Woodward-Clyde Consultants, 1990).

Records of water-level measurements are included in the quarterly Groundwater Monitoring Summary Reports (Kennedy/Jenks, January 1997b). The hydraulic gradient in the uppermost groundwater is generally toward the south-southeast, toward a local low in the area of wells WCC-7S and WCC-12S. The December 1996 groundwater gradient was  $6.6 \times 10^{-6}$  ft/ft (3.5 ft/mile) (Kennedy/Jenks, 1997b).

Groundwater conditions at the "Facility" are known from previous investigations and from the quarterly groundwater monitoring program (Kennedy/Jenks, 1997b). Groundwater samples from observation wells at the "Facility" have been sampled and analyzed on a quarterly basis since 1992.

## 4 RESULTS

This section summarizes information obtained from drilling and sampling the temporary monitoring wells. Results of this program are discussed in four categories: 1) subsurface geology, 2) groundwater, 3) chemical constituents in soil, and 4) chemical constituents in groundwater.

### 4.1 Subsurface Geology

The drilling program for the nine temporary groundwater monitoring wells provided soils data on roughly 10-foot intervals to the water surface (around 64 to 66 feet bgs) and general descriptions to total depth of around 86 feet. These soils data were combined with previous core boring data to 50 feet bgs conducted for a previous investigation (Kennedy/Jenks, 1997a) to produce generalized cross-sections D-D' and E-E' (Figures 5, 6 and 7). In general, the new soils data was correlative with the previous soils data and the soils units Q1 through Q4. A new unit, Q5, located below 65 feet bgs, has been described and added to the soils classification.

- **Unit Q1:** Unit Q1 is a layer of silty clay and sandy clay encountered at the surface or just below the pavement or engineered fill soils over the entire "Facility." This clay is typically dark brown to dark reddish brown in color and medium stiff to hard. It has moderate to high plasticity and is classified as CL or CH under the Unified Soil Classification System (USCS). Unit Q1 has a uniform thickness of about 5 feet along the west side of the "Facility." It thickens to about 22 feet on the northeast corner of the "Facility," but only to about 10 feet in the east-central portion of the "Facility."
- **Unit Q2:** Unit Q2 comprises a sequence of interbedded clayey silt, fine sandy silt, and fine silty sand with minor lenses of silty clay. The predominant USCS classifications are ML, SM and SC and combinations of the three classifications. The Unit Q2 soils are brown and olive brown in color and are generally medium dense. Unit Q2 is about 17 to 20 feet thick and the base is about 22 to 25 feet bgs along the west side of the "Facility." The unit thickens to about 30 to 40 feet at the east side of the "Facility." The base of Unit Q2 also slopes eastward, and occurs at depths of 45 to 50 feet along the northeast side of the "Facility" and greater than 50 feet at the east-central portion of the "Facility."
- **Unit Q3:** Unit Q3 is an interval of fine and very fine sand with only minor silt. Soils in this interval generally are classified as SP and SP-SM under the USCS. This soil unit includes distinctive beds containing abundant shell fragments on the southwest. The sand is mainly light yellowish brown to light yellowish gray in color. It has generally massive structure, and commonly is described as being similar to beach sand. The sand is generally dense, but has essentially no cohesion.

Unit Q3 is more than 25 feet thick on the west side of the "Facility," extending from about 20 feet bgs to below the 50-foot depth drilled at the northwest corner of the "Facility." However, in the southern part of the "Facility," Unit Q3 is interlayered with Unit Q4, a wedge of fine silty sand and fine sandy silt.

- **Unit Q4:** Unit Q4 was observed in borings in the southwestern and south-central part of the "Facility." It pinches out in the north-central part of the area and is likely below the depth drilled on the east. Maximum thickness of this soil unit is about 17 feet, on the

southwest. Unit Q4 mainly contains fine silty sand (SM) and clayey silt (ML) with thin interbeds of silty clay and fine sand. These soils are generally yellowish brown in color and are medium dense to dense.

- **Unit Q5:** Unit Q5 is a layer of predominantly silty sand and sandy silt encountered below about 65 feet bgs. The predominant USCS classification is SM. Unit Q5 soils are typically olive brown in color and generally dense. The unit extends to the base of the drilled interval; therefore no thickness measurements are possible. The top of Unit Q5 appears fairly consistent in a north-south direction, but tends to get deeper going from west to east.

## **4.2 Groundwater**

Groundwater was encountered under water-table conditions at depths of 64 to 65 feet bgs in the temporary monitoring wells. The water levels measured in the temporary monitoring wells were consistent with measurements in the pre-existing (permanent) wells, as listed in Table 2. Figure 4 is a water-level contour map combining measurements in the temporary groundwater monitoring wells with data from the permanent wells. The contours in Figure 4 indicate a quite flat hydraulic gradient toward the southeast at 0.001 ft/ft (5 feet per mile). This gradient is similar to that determined from previous water-level measurements in the permanent monitoring wells alone (e.g., Kennedy/Jenks, 1997b).

## **4.3 Chemical Constituents in Soil**

The soil samples were analyzed for the following parameters:

- VOCs by EPA Method 8260
- TPH by EPA Method 8015 for gasoline and diesel
- SVOCs by EPA Method 8270
- Pesticides by EPA Method 8080
- Title 22 metals by EPA Methods 6010 and 7471
- Hexavalent chromium (if total chromium exceeded 0.1 mg/kg) by EPA Method 7196.

The laboratory reports for soils are attached in Appendix B. Pesticides and volatile petroleum hydrocarbons (TPH-gasoline) were not detected in any of the samples. Extractable petroleum hydrocarbons (TPH-diesel) were detected in only two samples at 5 feet bgs in TMW-2 and 65 feet bgs in TMW-8, at 27 mg/kg and 13 mg/kg, respectively. The remaining analyses are discussed in the following subsections.

### **4.3.1 Volatile Organic Compounds**

VOCs detected in the soil samples are summarized in Table 3. Trichloroethene (TCE) was reported most commonly; it was detected in 60 of the 72 soil samples, including samples from each of the nine borings. In 18 of these samples, TCE was accompanied by related compounds, mainly 1,1-dichloroethene (1,1-DCE) but also including *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-dichloroethene (*trans*-1,2-DCE), 1,1-dichloroethane (1,2-DCA), and 1,1,1-trichloroethane (1,1,1-TCA). Concentrations typically were low in samples from the unsaturated-zone soils but increased in samples at the capillary fringe. Chloroform and naphthalene also were detected in a few isolated samples; chloroform was detected at 30

feet (4.1 µg/L) and 50 feet (5.7 µg/L) bgs in TMW-2 and naphthalene was detected at 2.9 µg/L at 30 feet bgs in TMW-5 and at 4.2 µg/L at 65 feet bgs in TMW-7. Chloroform is not known to have been used at the site and is also a common laboratory chemical.

The highest VOC concentrations were in the samples from TMW-2, in the northeast part of Building 1. This is near former Building 36, an area where previous exploration also found elevated VOCs in the unsaturated-zone soils (Kennedy/Jenks, 1997a). The unsaturated-zone soil samples from TMW-2 were reported to contain TCE at up to 300 µg/kg and 1,1-DCE at up to 140 µg/kg, along with lower levels of 1,1-DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, and 1,1,1-TCA. VOC levels at TMW-2 were increased in the capillary-fringe sample, with TCE reported at 1,000 µg/KG, 1,1-DCE at 340 µg/kg, and 1,1-DCA, 1,1,1-TCA, and *cis*-1,2-DCE at 39 to 57 µg/kg.

The VOC levels reported at TMW-2 did not continue to the nearby borings. Samples from the unsaturated zone in TMW-1, about 270 feet to the west, were reported to contain only relatively minor TCE (11 to 55 µg/kg) and 1,1-DCE (3.9 to 9.2 µg/kg). The capillary-fringe sample from TMW-1 showed TCE in the same range as the unsaturated-zone samples (17 µg/kg) and only a slight increase in 1,1-DCE (23 µg/kg). Similarly, the unsaturated-zone samples from TMW-9 (about 450 feet to the south-southwest in Building 1) were reported to contain only TCE at 7.6 to 73 µg/kg. TCE increased to 340 µg/kg in the capillary-fringe sample from TMW-9. Soil analyses from TMW-8 (just west of Building 1, about 450 feet south-southeast of TMW-2) were similar to those from TMW-9. Samples from the unsaturated zone were reported to contain low concentrations of TCE and 1,1-DCE (2.8 to 14 µg/kg) but these compounds increased to 210 and 23 µg/kg, respectively, at the capillary fringe.

Analyses of soil samples from TMW-7, outside the southeast corner of Building 1, and TMW-4, in the northeast part of Building 2, were similar to those from TMW-8 and TMW-9. The samples from 5 to 50 feet depth in TMW-7 were reported to contain TCE at 3 to 100 µg/kg; TCE increased to 380 µg/kg in the capillary fringe sample and was accompanied by trace levels of 1,1-DCE and naphthalene. TCE was reported in the 10- to 50-foot samples from TMW-4 at up to 51 µg/kg; the capillary fringe samples contained 240 µg/kg TCE along with low levels of 1,1-DCE and chloroform.

VOC concentrations were slightly higher in samples from the western part of Building 2. Samples from the unsaturated zone in TMW-3 generally were reported to contain TCE at 24 to 92 µg/kg. However, the sample from 20 feet bgs showed TCE increased to 250 µg/kg, along with trace levels of 1,1-DCA, 1,1-DCE, 1,1,1-TCA, and *cis*-1,2-DCE. TCE increased further to 1,100 µg/kg in the capillary-fringe sample. At TMW-5, most unsaturated-zone samples were reported to contain TCE at up to 91 µg/kg, along with traces on *cis*-1,2-DCE. The samples from 20 and 50 feet bgs showed increased TCE levels of 190 and 320 µg/kg, respectively. TCE in the capillary fringe sample from TMW-5 was 910 µg/kg.

#### **4.3.2 Semi-Volatile Organic Compounds**

SVOCs were detected only in the near-surface soil samples from TMW-1 and TMW-2 (Table 4), in the northern part of Building 1. Several coal-tar derivatives typically associated with asphalt were detected at up to 4,000 µg/kg in the samples from 3 and 5 feet bgs in TMW-1. Some of the same compounds also were detected in the 1-foot sample from TMW-2 at

lower concentrations of up to 400 µg/kg. These compounds were not detected in the deeper samples from these borings, or at the other borings.

#### **4.3.3 Metals**

Metals detected in the soil samples are summarized in Table 5. Results of these analyses were compared with the typical concentrations of metals in the local soils, determined from the previous extensive site exploration (Table 6).

Metals detected in these soil samples were generally similar to those detected previously. Barium, chromium (total), cobalt, copper, nickel, vanadium, and zinc were detected in nearly all the samples from the temporary monitoring wells, and were detected in all the samples from the previous exploration. The concentrations of these metals detected in the recent samples also were in about the same range as those reported from the previous exploration (Table 6).

Arsenic, beryllium, and lead were detected in most of the samples from the temporary monitoring wells, but generally were not detected in the previous exploration. Arsenic was reported at generally low levels, mainly less than 10 mg/kg and not exceeding 20 mg/kg. These concentrations are within the typical natural range for soils (Table 6) and are substantially below the TTLC of 500 mg/kg. The arsenic concentrations also were generally uniform laterally and vertically in this area, indicating that the arsenic is most likely a natural constituent in these soils.

Beryllium was reported at very low concentrations, up to a maximum of 1.3 mg/kg. These concentrations are at the low end of the common range in soils (Table 6) and a small fraction of the TTLC. The beryllium concentrations also were generally uniform vertically and laterally, and appear to be a natural occurrence.

Lead was detected in all the soil samples at generally low concentrations, mainly less than 10 mg/kg. Three samples were reported to contain lead at 11 to 16 mg/kg and a maximum concentration of 38 mg/kg was reported in the samples from 20 feet bgs in TMW-6. These lead concentrations are at the low end of the common range in soils (Table 6) and do not approach the TTLC. The generally uniform concentrations of lead in these samples indicate that it is most likely a natural constituent in the soil.

Cadmium, selenium, and molybdenum were reported at low levels in a few samples, mainly from TMW-5. Cadmium was detected at up to 1 mg/kg in 10 samples from TMW-5, TMW-2, and TMW-6. Molybdenum was reported at up to 4 mg/kg in four samples from TMW-5 and TMW-6. The cadmium and molybdenum levels are within to slightly above the common range in soils (Table 6). Selenium was detected in seven samples from TMW-5 at up to 5.1 mg/kg. The reported selenium levels are slightly above the common range in soils (Table 6). All three of these metals were reported at levels much lower than the TTLC or 10 times the STLC.

#### **4.4 Chemical Constituents in Groundwater**

Groundwater samples from the temporary monitoring wells were analyzed for the parameters that were specified in the work plan:

- VOCs by EPA Method 8260

- TPH by EPA Method 8015 for gasoline and diesel
- SVOCs by EPA Method 8270
- Pesticides by EPA Method 8080
- Title 22 metals by EPA Methods 6010 and 7471
- Hexavalent chromium (if total chromium exceeded 0.1 mg/L) by EPA Method 7196

The groundwater laboratory reports are attached in Appendix F and the compounds detected are summarized in Table 7. Pesticides and extractable fuel hydrocarbons (TPH diesel) were not detected in any of the samples. Semi-volatile organic compounds generally were not detected; only bis (2ethylhexyl) phthalate (a common plasticizer found in laboratory equipment) was reported in the samples from TMW-8 and TMW-9 at 5.8 and 61 µg/L, respectively. Volatile fuel hydrocarbons (TPH gasoline) were reported at 0.2 to 3.5 ppm in all wells, and generally were higher in the samples having higher levels of VOCs. Results of the VOC and metals analyses are discussed in the following subsections.

#### **4.4.1 Volatile Organic Compounds in Groundwater**

VOCs were detected in the groundwater samples from all the temporary monitoring wells. TCE and 1,1-DCE occurred at the highest concentrations, and were detected in all the wells. TCE and 1,1-DCE also are accompanied by related compounds including *cis*-1,2-DCE, *trans*-1,2-DCE, 1,2-DCA, 1,1,1-TCA, and 1,1,2-TCA. These compounds were detected in differing combinations and proportions, indicating the possibility of originating from more than one source.

Based on the preliminary round of data collected for this study, and on common industrial usage and the distribution and concentration of the VOCs at the "Facility," the TCE, 1,1,1-TCA, and 1,1,2-TCA are likely present as the "parent" compounds. 1,1-DCE *cis*-1,2-DCE, *trans*-1,2-DCE, 1,1-DCA, and 1,2-DCA are likely present as transformation products.

1,1-DCE and 1,1-DCA are common transformation products of 1,1,1-TCA. 1,1-DCE is produced from 1,1,1-TCA as a result of a type of chemical reaction, termed an elimination reaction. 1,1-DCA is produced from 1,1,1-TCA as a result of an anaerobic biological reaction termed reductive dechlorination. 1,1-DCE and 1,1-DCA may also result from similar transformations of 1,1,2-TCA. 1,2-DCA is produced from 1,1,2-TCA as a result of biologically mediated reductive dechlorination.

*Cis*-1,2-DCE and *trans*-1,2-DCE are common transformation products of TCE. Both are formed as a result of biologically mediated reductive dechlorination. 1,1-DCE theoretically can also be produced from TCE via biologically mediated reductive dechlorination. However, *cis*-1,2-DCE and *trans*-1,2-DCE are more commonly produced from TCE than 1,1-DCE.

At sites with both 1,1,1-TCA and TCE, the presence of 1,1-DCE is more commonly a result of transformation of the 1,1,1-TCA than transformation of the TCE. The rate of chemical transformation of 1,1,1-TCA in the subsurface is generally greater than the rate of biological transformation of TCE in the subsurface. The chemical reactions of these chlorinated VOCs are generally less sensitive to site conditions than biologically mediated reactions. The chemical elimination reaction that produces 1,1-DCE may therefore proceed at a

sufficient rate when biologically mediated reductive dechlorination is inhibited due to sub-optimum conditions.

The highest VOC concentrations were detected in water from TMW-2; as noted previously, this well is in an area where high levels of VOCs had been reported from previous exploration. Water from TMW-2 was reported to contain TCE and 1,1-DCE at 34,000 and 36,000 µg/L, respectively. The TMW-2 water also contained 1,1,1-TCA (6,900 µg/L) and lower levels of chloroform, *cis*-1,2-DCE, and *trans*-1,2-DCE.

Analyses of groundwater from the temporary monitoring wells located southeast of TMW-2 detected the same group of compounds, although at much lower concentrations. The samples from TMW-8 and TMW-7 were reported to contain TCE and 1,1-DCE at 3,000 to 7,000 µg/L, along with 1,1,1-TCA, *cis*-1,2-DCE, and *trans*-1,2-DCE. These samples also contained benzene (40 to 62 µg/L), 1,1-DCA (73 to 99 µg/L), and 1,1,2-TCA (29 to 37 µg/L), which were not reported at TMW-2.

A similar set of compounds was detected further to the south at TMW-4. The sample from TMW-4 was reported to contain TCE and 1,1-DCE (at 2,300 and 1,500 µg/L), along with *cis*-1,2-DCE, *trans*-1,2-DCE, 1,1-DCA, and 1,1,2-TCA. The samples from TMW-2, TMW-8, TMW-7, and TMW-4 characteristically contain 1,1-DCE at levels similar to or higher than TCE, along with the same related compounds.

VOC levels in nearby wells TMW-1 and TMW-9 were markedly lower than in TMW-2. TCE and 1,1-DCE in water from TMW-1 were only 540 and 900 µg/L, respectively. However, the water seems similar in character to that from TMW-2 in that 1,1-DCE was higher than TCE and that chloroform and 1,1,1-TCA also were detected. The sample from TMW-9 showed TCE at 290 µg/L with only 24 µg/L of 1,1-DCE and traces of chloroform and tetrachloroethene (PCE).

The samples from wells TMW-3, TMW-5, and TMW-6, in the west and south parts of Building 2, contained VOCs in different combinations than seen at TMW-2 and the nearby wells. Water from TMW-3 and TMW-5 contained elevated TCE (8,100 and 3,700 µg/L) with much lower levels of 1,1-DCE (200 and 460 µg/L). No other VOCs were detected in these samples. TCE was much lower (490 µg/L) in the sample from TMW-6, as was 1,1-DCE (26 µg/L). Chloroform, however, was the highest reported in these wells, at 550 µg/L.

#### **4.4.2 Metals in Groundwater**

Barium, chromium, and zinc were detected in the groundwater samples (Table 7). The remaining Title 22 metals were not detected.

Barium was reported at 0.020 to 0.23 mg/L. These values are well below the drinking water standard of 1 mg/L. The highest barium levels were reported from TMW-1 and TMW-2, at 0.2 and 0.23 mg/L. Reasons for these higher concentrations are not known. It is notable that barium levels were not unusually high in the capillary-fringe soil samples from these locations.

Chromium (total) was reported in the samples from TMW-3, TMW-4, TMW-5, TMW-6, and TMW-9 at similar concentrations of 0.011 to 0.018 mg/L. These values are below the drinking water standard of 0.05 mg/L. Chromium (total) was not detected in water from TMW-1, TMW-7, and TMW-8. The water from TMW-2 was reported to contain chromium

(total) at 0.13 mg/L, and the EPA 7196 analysis reported hexavalent chromium at the same level. Hexavalent chromium was not detected in the soil sample from the capillary fringe in TMW-2, and total chromium levels were not unusually high.

Zinc was detected in the samples from TMW-1, TMW-2, TMW-3, TMW-4, TMW-6, TMW-7, and TMW-8 at 0.013 to 0.093 mg/L. These values are a small fraction of the 5 mg/L drinking water standard. Zinc was not detected in TMW-5 and TMW-9.

## 5 SUMMARY

Nine temporary groundwater monitoring wells were installed, developed and sampled in the area of buildings 1 and 2 on the "Facility." Soil samples were collected at intervals from one foot below the base of the surface covering to the capillary fringe at around 65 feet bgs during well installation. One round of groundwater samples were collected and analyzed during this investigation.

Overall, the soils and groundwater data are in good agreement with chemicals of concern and their distribution in the subsurface identified in previous characterization studies performed on the "Facility" but outside of the area of Buildings 1 and 2. The south-southeast groundwater flow direction and low gradient are also consistent with the results of previous characterizations.

- TPH-gasoline and pesticides were not detected in any of the soil samples.
- VOCs were detected throughout the soils analyzed, with TCE and 1,1-DCE being the most common. The highest concentrations of VOCs were detected at TMW-2, located in the northeast corner of Building 1 near the former Building 36, an area where previous exploration also found elevated VOCs in the unsaturated soils (Kennedy/Jenks, 1997a). The highest concentration of TCE was 300 µg/kg in TMW-2 at 30 feet bgs and of 1,1-DCE was 140 µg/kg in TMW-2 at 30 feet bgs. VOC levels increased in the capillary fringe soil samples from TMW-2 with TCE reported at 1,000 µg/kg and 1,1-DCE reported at 340 µg/kg. The capillary fringe soil samples typically had the highest concentrations of VOCs. Lower concentrations of 1,1-DCA, *cis*-1,2-DCE, *trans*-1,2-DCE and 1,1,1-TCA were also associated with the TCE and 1,1-DCE at TMW-2. VOC distribution at TMW-4, TMW-7, TMW-8, and TMW-9 were similar to TMW-2 but at lesser concentrations.
- VOC concentrations in soils were slightly higher along the west side of Building 2 at TMW-3 and TMW-5 than at TMW-1, TMW-4, TMW-7, TMW-8, and TMW-9. TCE concentration was highest along the west side of Building 2 at TMW-3 with a concentration of 250 µg/kg at 20 feet bgs and increased to 1,000 µg/kg in the capillary fringe. In TMW-5 the highest concentration of TCE was 320 µg/kg at 50 feet bgs and increased to 910 µg/kg in the capillary fringe.
- SVOCs were detected in soils only in TMW-1 and TMW-2 located in the northern part of Building 1. Coal tar derivatives were detected up to 4,000 µg/kg from 3 and 5 feet bgs at TMW-1 and up to 400 µg/kg from the 1-foot bgs sample from TMW-2.
- Metals detected in the soils were generally similar to the metals detected from previous extensive site investigations. Barium, chromium (total), cobalt, copper, nickel, vanadium, and zinc were detected in nearly all the soil samples, and at concentrations in about the same range as previously reported.
- In addition, arsenic, beryllium, and lead were detected in most of the soil samples from the temporary monitoring wells, but were not typically detected in previous investigations. All were detected at low concentrations within the natural range for soils and are well below the appropriate TTLC levels, and are generally uniform vertically and laterally, suggesting a natural occurrence.

- Cadmium, selenium, and molybdenum were reported at low levels in a few soil samples, mainly from TMW-5. All are slightly above the common range in soils but are at levels much lower than the TTLC or 10 times the STLC.
- The depth to first groundwater, the groundwater flow direction and the groundwater gradient are in accord with the previously determined direction and gradient from the existing onsite monitoring well network. Groundwater is first encountered between 64.5 and 66.5 feet bgs. The flow direction is approximately south-southeast with a relatively flat gradient of about 0.001 ft/ft (about 5 feet per mile).
- TPH-diesel and pesticides were not detected in any groundwater samples. SVOCs, except for bis (2ethylhexyl) phthalate at 5.8 and 61 µg/L in TMW-8 and TMW-9 respectively were not detected in any soil samples. TPH-gasoline was detected in all groundwater samples ranging from 0.2 to 3.5 mg/L.
- VOCs were detected in all groundwater samples. TCE and 1,1-DCE had the highest concentrations detected at TMW-2 at 34,000, and 36,000 µg/L, respectively. Detections of 1,1,1-TCA, *cis*-1,2-DCE, and *trans*-1,2-DCE were also associated with the TCE and 1,1-DCE. Wells TMW-4, TMW-7 and TMW-8 also had similar distributions of chemical detections but at decreasing concentrations going downgradient. All these wells had 1,1-DCE at levels similar to or higher than TCE along with the same related compounds. Wells TMW-1 and TMW-9 also have chemical distributions similar to TMW-2 and the associated downgradient wells but at substantially lower concentrations.
- Wells TMW-3, TMW-5, and TMW-6 contained VOCs too but in different combinations than at TMW-2. The concentrations of TCE was much higher than 1,1-DCE in these wells. No other VOCs were detected in these wells and Chloroform was detected in these wells at its highest concentrations.
- Based on the preliminary round of data collected for this report, TCE, 1,1,1-TCA and 1,1,2-TCA are likely present as the “parent” compounds at the “Facility.”
- 1,1-DCE and 1,1-DCA are common transformation products of 1,1,1-TCA. 1,1-DCE is produced by a chemical reaction termed an elimination reaction. 1,1-DCA is produced as a result of an anaerobic biological reaction termed reductive dechlorination.
- *Cis*-1,2-DCE and *trans*-1,2-DCE are common transformation products of TCE formed by biologically mediated reductive dechlorination.

## **6 RECOMMENDATIONS**

The chemical concentrations for TCE and 1,1-DCE in groundwater are higher than previous results from areas north and east of Buildings 1 and 2, but have similar chemical distributions. The distributions of chemicals from this one-time, preliminary sampling round suggests the possibility of originating from more than one source.

It is suggested that additional rounds of groundwater sampling be initiated, and that sampling combine the nine temporary groundwater monitoring wells and the existing groundwater monitoring well network on site.

## **7 REFERENCES**

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- Poland, J. F., Garrett, A. A., and Sinnott, A., 1959, "Geology, Hydrology, and Chemical Character of the Ground Waters in the Torrance- Santa Monica, California," USGS Water Supply Paper 1461, U.S. Government Printing Office, Washington, D.C.
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## TABLES

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**TABLE 1**  
**MONITORING WELL CONSTRUCTION DETAILS**  
**BOEING REALTY COMPANY, C-6 FACILITY**  
**LOS ANGELES, CALIFORNIA**  
**K/J 984006.00**

Well	Date Constructed	Well Diameter (inches)	Total Depth of Borehole (Feet)	Depth of Screened Interval (Feet)	Depth to top of Sand Filter Pack (Feet)	Well Casing Material and Slot Size	Hydrogeologic Unit Screened
TMW-1	6/28/98	2	86	61-81	59	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-2	6/28/98	2	87	62-82	57	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-3	7/21/98	2	87	62.5-82.5	60	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-4	6/30/98	2	86	60-80	58	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-5	7/2/98	2	86	61.3-81.3	58.9	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-6	7/1/98	2	86	61.2-81.2	59.1	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-7	6/29/98	2	89.5	64-84	62	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-8	6/29/98	2	89.5	61-81	59	Schedule 40 PVC0.010-Inch Slots	Shallow
TMW-9	6/30/98	2	86	61-81	59	Schedule 40 PVC0.010-Inch Slots	Shallow

**TABLE 2**  
**SUMMARY OF GROUNDWATER ELEVATION DATA**

**BOEING REALTY COMPANY, C-6 FACILITY**  
**LOS ANGELES, CALIFORNIA**  
**K/J 984006.00**

Well	Reference Point <sup>1,2</sup> Elevation (Feet Above MSL)	7/15/98	
		Depth <sup>3</sup>	Elevation
WCC-3S	51.12	64.52	-13.40
WCC-4S	49.58	63.14	-13.56
WCC-5S	48.10	NF	-
WCC-6S	51.32	65.01	-13.69
WCC-7S	48.29	NA	-
WCC-9S	46.90	NF	-
WCC-10S	51.14	63.67	-12.53
WCC-11S	49.85	NF	-
WCC-12S	46.84	60.80	-13.96
DAC-P1	52.30	65.58	-13.28
TMW-1	52.41	65.82	-13.41
TMW-2	52.12	65.54	-13.42
TMW-3	51.90	66.07	-14.17
TMW-4	51.85	66.25	-14.40
TMW-5	51.32	65.94	-14.62
TMW-6	51.18	65.89	-14.71
TMW-7	52.25	66.23	-13.98
TMW-8	52.42	66.27	-13.85
TMW-9	52.46	66.54	-14.08

**Notes:**

1. Reference point is north side, top of well casing
2. Reference points were surveyed 2 September 1998.
3. Depth in feet below reference point.
4. NF - Well not found, covered as a result of construction activities. Depth to water not measured.  
(These wells were subsequently uncovered and are currently accessible.)
5. NA - Well not accessible. Depth to water not measured.

**TABLE 3**  
**CHEMICAL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS AND PETROLEUM HYDROCARBONS IN SOILS**  
**(EPA Methods 8260 and 8015M)**

Boeing Realty Company, C-6 Facility  
 Los Angeles, California  
 K/J 984006.00

Area	Well	Depth (ft bgs)	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	Trichloroethene	Naphthalene	cis-1,2-Dichloroethene	TPH-Gasoline	TPH- Diesel
Detection Limit (µg/kg)			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0 mg/kg	8.0 mg/kg
Bldg. 1	TMW-1	3										
	TMW-1	5										
	TMW-1	10						11				
	TMW-1	20			4.2			24				
	TMW-1	30			9.2			55				
	TMW-1	40			9			36				
	TMW-1	50			3.9			15				
	TMW-1	66			23			17				
Bldg. 1	TMW-2	1						17				
	TMW-2	5			2.6			12				27
	TMW-2	10			32			78				
	TMW-2	20		4.5	59		5.1	180				
	TMW-2	30	4.1	11	140	2.8	21	300		5.7		
	TMW-2	40			13			65				
	TMW-2	50	5.7	16	82	2.7	69	230		9.5		
	TMW-2	66		57	340		54	1000		39		
Bldg. 2	TMW-3	3						49				
	TMW-3	5						48				
	TMW-3	10						48				
	TMW-3	20		2.9	9.9		7.1	250		4.9		
	TMW-3	30						24				
	TMW-3	40						30				
	TMW-3	50						92				
	TMW-3	66						1100				
Bldg. 2	TMW-4	1										
	TMW-4	5										
	TMW-4	10						8.6				
	TMW-4	20						9				
	TMW-4	30						19				
	TMW-4	40						7				
	TMW-4	50						51				
	TMW-4	65	21		16			240				

Note:  
 Blank cell indicates constituent result was below the detection limit.

**TABLE 3**  
**CHEMICAL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS AND PETROLEUM HYDROCARBONS IN SOILS**  
(EPA Methods 8260 and 8015M)  
Boeing Realty Company, C-6 Facility  
Los Angeles, California  
K/J 984006.00

Area	Well	Depth (ft bgs)	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	Trichloroethene	Naphthalene	cis-1,2-Dichloroethene	TPH-Gasoline	TPH- Diesel
Detection Limit (µg/kg)			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0 mg/kg	8.0 mg/kg
Bldg. 1	TMW-1	3										
	TMW-1	5										
	TMW-1	10						11				
	TMW-1	20			4.2			24				
	TMW-1	30			9.2			55				
	TMW-1	40			9			36				
	TMW-1	50			3.9			15				
	TMW-1	66			23			17				
Bldg. 1	TMW-2	1						17				
	TMW-2	5			2.6			12				27
	TMW-2	10			32			78				
	TMW-2	20		4.5	59		5.1	180				
	TMW-2	30	4.1	11	140	2.8	21	300		5.7		
	TMW-2	40			13			65				
	TMW-2	50	5.7	16	82	2.7	69	230		9.5		
	TMW-2	66		57	340		54	1000		39		
Bldg. 2	TMW-3	3						49				
	TMW-3	5						48				
	TMW-3	10						48				
	TMW-3	20		2.9	9.9		7.1	250		4.9		
	TMW-3	30						24				
	TMW-3	40						30				
	TMW-3	50						92				
	TMW-3	66						1100				
Bldg. 2	TMW-4	1										
	TMW-4	5										
	TMW-4	10						8.6				
	TMW-4	20						9				
	TMW-4	30						19				
	TMW-4	40						7				
	TMW-4	50						51				
	TMW-4	65	21		16			240				

Note:  
Blank cell indicates constituent result was below the detection limit.

**TABLE 3**  
**CHEMICAL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS AND PETROLEUM HYDROCARBONS IN SOILS**  
**(EPA Methods 8260 and 8015M)**  
Boeing Realty Company, C-6 Facility  
Los Angeles, California  
K/J 984006.00

Area	Well	Depth (ft bgs)	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	Trichloroethene	Naphthalene	cis-1,2-Dichloroethene	TPH-Gasoline	TPH- Diesel
Detection Limit (µg/kg)			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0 mg/kg	8.0 mg/kg
Bldg. 2	TMW-5	1						91		2.7		
	TMW-5	5						91		4		
	TMW-5	10						56				
	TMW-5	20						190		3.5		
	TMW-5	30						30	2.9			
	TMW-5	40						9.9				
	TMW-5	50						320				
	TMW-5	65						910				
Bldg. 2	TMW-6	1										
	TMW-6	5										
	TMW-6	10										
	TMW-6	20						2.9				
	TMW-6	30						9.8				
	TMW-6	40						8.8				
	TMW-6	50										
	TMW-6	65										
Outside Bldg 1	TMW-7	1										
	TMW-7	5						3				
	TMW-7	10						13				
	TMW-7	20						38				
	TMW-7	30						35				
	TMW-7	40						100				
	TMW-7	50						50				
	TMW-7	65			6.7			380	4.2			
Outside Bldg 1	TMW-8	1										
	TMW-8	5										
	TMW-8	10						3.4				
	TMW-8	20						5.6				
	TMW-8	30			3.5			13				
	TMW-8	40			2.8			12				
	TMW-8	50						14				
	TMW-8	65			23			210				13
Bldg. 1	TMW-9	1						14				
	TMW-9	5						11				
	TMW-9	10						7.6				
	TMW-9	20						16				
	TMW-9	30						32				
	TMW-9	40						8.5				
	TMW-9	50						73				
	TMW-9	65						340				

Note:  
Blank cell indicates constituent result was below the detection limit.

TABLE 4  
CHEMICAL ANALYTICAL RESULTS:  
SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS  
(EPA Method 8270)

Boeing Realty Company, C-6 Facility  
Los Angeles, California

KJJ 984006.00

Area	Well	Depth (ft bgs)	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
			Detection Limit (µg/kg)	100	100	250	250	250	250	250	100	100	100	100	250	100	100
Bldg 1	TMW-1	3		110	2500	3000	1800	2000	3000	3100	900		4000		2000	1300	3400
	TMW-1	5			130	1500	1200	1100	1700	1800	530		2400			740	2000
	TMW-1	10															
	TMW-1	20															
	TMW-1	30															
	TMW-1	40															
	TMW-1	50															
Bldg 1	TMW-1	66															
	TMW-2	1		110	160					170		380				400	270
	TMW-2	5															
	TMW-2	10															
	TMW-2	20															
	TMW-2	30															
	TMW-2	40															
	TMW-2	50															
	TMW-2	66															

Note:  
Blank cell indicates constituent result was below the detection limit.

TA\_4  
CHEMICAL ANALYTICAL RESULTS:  
SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS  
(EPA Method 8270)

Boeing Realty Company, C-6 Facility  
Los Angeles, California

K/J 984006.00

Area	Well	Depth (ft bgs)	Detection Limit (µg/kg)															
			Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	
Bldg 2	TMW-3	1																
	TMW-3	5																
	TMW-3	10																
	TMW-3	20																
	TMW-3	30																
	TMW-3	40																
	TMW-3	50																
	TMW-3	65																
Bldg 2	TMW-4	1																
	TMW-4	5																
	TMW-4	10																
	TMW-4	20																
	TMW-4	30																
	TMW-4	40																
	TMW-4	50																
	TMW-4	65																

Note:  
Blank cell indicates constituent result was below the detection limit.

TABLE 4  
CHEMICAL ANALYTICAL RESULTS:  
SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS  
(EPA Method 8270)

Boeing Realty Company, C-6 Facility  
Los Angeles, California

K/J 984006.00

Area	Well	Depth (ft bgs)	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
Bldg 2	TMW-5	1														
	TMW-5	5														
	TMW-5	10														
	TMW-5	20														
	TMW-5	30														
	TMW-5	40														
	TMW-5	50														
	TMW-5	65														
Bldg 2	TMW-6	1														
	TMW-6	5														
	TMW-6	10														
	TMW-6	20														
	TMW-6	30														
	TMW-6	40														
	TMW-6	50														
	TMW-6	65														

Note:  
Blank cell indicates constituent result was below the detection limit.

TAL - 4  
CHEMICAL ANALYTICAL RESULTS:  
SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS  
(EPA Method 8270)

Boeing Realty Company, C-6 Facility  
Los Angeles, California

KJJ 984006.00

Area	Well	Depth (ft bgs)	Detection Limit (µg/kg)															
			Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	
Outside	TMW-7	1																
	TMW-7	5																
	TMW-7	10																
	TMW-7	20																
	TMW-7	30																
	TMW-7	40																
	TMW-7	50																
TMW-7	65																	
Outside	TMW-8	1																
	TMW-8	5																
	TMW-8	10																
	TMW-8	20																
	TMW-8	30																
	TMW-8	40																
	TMW-8	50																
TMW-8	65																	

Note:  
Blank cell indicates constituent result was below the detection limit.

**TABLE 4**  
**CHEMICAL ANALYTICAL RESULTS:**  
**SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS**  
**(EPA Method 8270)**

Boeing Realty Company, C-6 Facility  
 Los Angeles, California

K/J 984006.00

Area	Well	Depth (ft bgs)	Detection Limit (µg/kg)															
			Acenaphthene	Anthracene	Ben(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Hexachlorobenzene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	
Bldg 1	TMW-9	1																
	TMW-9	5																
	TMW-9	10																
	TMW-9	20																
	TMW-9	30																
	TMW-9	40																
	TMW-9	50																
	TMW-9	65																

Note:  
 Blank cell indicates constituent result was below the detection limit.

TABLE 5  
CHEMICAL ANALYTICAL RESULTS: TITLE 22 METALS IN SOILS  
Boeing Realty Company, C-6 Facility  
Los Angeles, California  
KU 984006.00

Area	Sample I.D.	Sample Depth (ft. bgs)	Arsenic EPA 6010 (mg/kg)	Antimony EPA 6010 (mg/kg)	Barium EPA 6010 (mg/kg)	Beryllium EPA 6010 (mg/kg)	Cadmium EPA 6010 (mg/kg)	Chromium (VI) <sup>1</sup> EPA 7196 (mg/kg)	Chromium Tot. EPA 6010 (mg/kg)	Cobalt EPA 6010 (mg/kg)	Copper EPA 6010 (mg/kg)	Lead EPA 6010 (mg/kg)	Mercury EPA 7471 (mg/kg)	Molybdenum EPA 6010 (mg/kg)	Nickel EPA 6010 (mg/kg)	Selenium EPA 6010 (mg/kg)	Silver EPA 6010 (mg/kg)	Thallium EPA 6010 (mg/kg)	Vanadium EPA 6010 (mg/kg)	Zinc EPA 6010 (mg/kg)
		STLC Limits (mg/l)	15	5.0	100	0.75	1.0	5.0	560	80	25	5.0	0.2	350	350	20	1.0	5.0	7.0	24
		TTLC Limits (mg/kg)	500	500	10000	75	100	500	2500	8000	2500	1000	20	3500	2000	100	500	700	2400	5000
		Detection Limit (mg/kg)	5.0	1.0	0.1	0.1	0.1	0.5	0.05	0.5	0.1	1.0	0.01	0.5	0.5	1.0	0.1	5.0	0.5	0.1
Bldg 1	TMW-1	3			130	0.59			21	11	19	5.9			15					47
	TMW-2	5	3.4	3.2	130	0.6			22	11	23	7.8			16					50
	TMW-1	10	4.9	4.9	130	0.79			29	16	34	5.8			25				60	72
	TMW-1	20	2.9	2.9	160	0.64			23	13.0	32	4.2			20				53	70
	TMW-1	30	4.2	4.2	180	0.52			21	12	29	4.2			20				52	58
	TMW-1	40	3.9	3.9	54				13	5.3	6.1	2.1			9.4				24	25
Bldg 1	TMW-1	50	17		85				19	10	21	3.6			17				51	48
	TMW-1	66			66				20	8.6	23	4.4			16				33	45
Bldg 1	TMW-2	1			120	0.58			20	11	20	5.2			16					47
	TMW-2	5	2.3		160	0.7			24	12	18	4.5			11				47	41
	TMW-2	10	3.4		120	0.52	1		21	12	27	3.4			18				51	59
	TMW-2	20	4		130	0.71			30	13	31	5			22				58	67
	TMW-2	30	5.2		180	0.54	0.55		23	12	29	4.2			21				57	62
	TMW-2	40	5.7		160				15	11.0	16	2.7			13				44	58
Bldg 2	TMW-2	50	12		33				9.8	4	6.5	1.4			6				16	25
	TMW-2	66	2.4		90	0.58			24	12	36	7.7			2.4				49	60
Bldg 2	TMW-3	3			150	0.57			21	11	18	3.9			17				49	53
	TMW-3	5	3.5		130	0.67			23	12	29	4.6			17				47	53
	TMW-3	10	4		210	0.53			20	11	24	3.8			17				47	56
	TMW-3	20	2.9		150	0.69			24	11	29	5.6			20				44	64
	TMW-3	30	2.8		19				6.4	2.8	7.9	1.3			4.7				12	18
	TMW-3	40	3.1		15				6.2	2.8	6.1	1.1			4.7				12	17
Bldg 2	TMW-3	50	9.6		51				14	7.7	14	3.3			13				33	39
	TMW-3	66	3.9		130	0.55			27	10	27	7.9			19				34	55
Bldg 2	TMW-4	1			110	0.58			19	12	17	4.3			11				44	40
	TMW-4	5	3.5		130	0.67			23	12	29	4.6			18				52	58
	TMW-4	10	2.5		130				23	11	21	3.9			16				43	56
	TMW-4	20	3.7		150	0.56			23	13	28	4.4			19				51	62
	TMW-4	30	3.6		120				16	8.5	19	3			15				41	47
	TMW-4	40	4.9		56				11	4.7	8.1	2.1			8.6				24	28
Bldg 2	TMW-4	50	12		180				30	9	40	6		1.7	16				53	56
	TMW-4	65.0	3.3		75				24	12	34	6.5			25				44	58
Bldg 2	TMW-5	10			220	1.3	0.31		39	21.0	29	11			32	5.1	4.2		75	74
	TMW-5	5	9.4		240	1.1	0.24		41	23	44	9.7			32	4.5			92	110
	TMW-5	10	8.1		210	0.94	0.33		41	22	48	8.9			32	3.4			89	110
	TMW-5	20	9.2		220	0.94	0.66		38	18	41	9.4		0.74	29	3.1			78	96
	TMW-5	30	11		90	0.28	0.14		24	11	35.0	4.6			15	2.8			47	87
	TMW-5	40	7.3		39	0.15	0.19		15	6.9	16	3.6			11	2.6			26	42
Bldg 2	TMW-5	50	16		260	1	0.11		46	26	81	12			41	2.9			77	140
	TMW-5	65	5.9		160	0.6			34	20.0	45	11			29	2.4			72	83

Note:  
Blank cell indicates constituent result was below the detection limit.  
1. Chromium (VI) analysis was performed if total Chromium exceeded 0.10 mg/kg.

**TABLE 5**  
**CHEMICAL ANALYTICAL RESULTS: TITLE 22 METALS IN SOILS**  
 Boeing Realty Company, C-6 Facility  
 Los Angeles, California  
 KJ 984006.00

Area	Sample I.D.	Sample Depth (ft. bgs)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) <sup>1</sup> (mg/kg)	Chromium Tot. (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
		STLC Limits (mg/h)	15	5.0	100	0.75	1.0	5.0	560	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
		TTLC Limits (mg/kg)	500	500	10000	75	100	500	2500	8000	2500	1000	20	3500	2000	100	500	700	2400	5000
		Detection Limit (mg/kg)	5.0	1.0	0.1	0.1	0.1	0.5	0.05	0.5	0.1	1.0	0.01	0.5	0.5	1.0	0.1	5.0	0.5	0.1
Bldg 2	TMW-6	1			68				12	6.5	12	3.4								33
	TMW-6	5		2.7	83	0.8			19	10	34	4.3								23
	TMW-6	10		2.8	94	0.51			18	11	23	4.1								43
	TMW-6	20		2.7	110	0.83			20	11	26	3.8								57
	TMW-6	30		1.9	100	0.53			16	7.8	16	3.2								67
	TMW-6	40		4	570		0.91		7	8.7	10	4.1								49
	TMW-6	50		11	64				16	8.0	18	3.4								28
	TMW-6	65			25				9.3	3.7	6	1.6								19
																				54
																				32
																				12
																				20
Outside	TMW-7	1		3.6	120				18	12	18	16								54
	TMW-7	5		4.5	150	0.82			28	15	19	5.2								41
	TMW-7	10		5.7	180	0.71			28	14	33	5.3								66
	TMW-7	20		3.7	160				24	14.0	30	4.9								82
	TMW-7	30		8	180	0.68			28	16	37	6.1								68
	TMW-7	40		9.3	230	0.74			26	17	38	4.8								78
	TMW-7	50		13	29				9.5	3.7	3.1	1.6								75
	TMW-7	65		2.1	54				21	11	22	3.5								64
																				86
																				20
																				18
																				40
Outside	TMW-8	1		2.6	96				18	9.3	15	4.2								38
	TMW-8	5		2.4	120	0.51			17	11	12	3.2								45
	TMW-8	10		6.1	150	0.81			30	15	32	5.9								46
	TMW-8	20		4.2	150	0.57			22	13	26	3.9								66
	TMW-8	30		6.6	180	0.64			25	13	33	5.2								71
	TMW-8	40		3.5	130	0.54			22	10	23	3.1								65
	TMW-8	50		16	36				11	4.4	4.1	1.9								70
	TMW-8	65		3.1	58				19	10	20	2.5								68
																				41
																				20
																				24
																				32
Bldg 1	TMW-9	1		2.1	120				15	9.5	16	4								32
	TMW-9	5		2.3	100	0.54			31	11	14	4								38
	TMW-9	10		4.7	160	0.67			28	13	36	5.1								45
	TMW-9	20		4.6	160	0.68			23	13	31	5.5								55
	TMW-9	30		8.4	200	0.72			31	14	41	6.6								71
	TMW-9	40		4.5	45				12	4.8	6.1	1.7								54
	TMW-9	50		8.7	190				24	11	31	5.9								74
	TMW-9	65			36				11	5.1	9.5	2.1								30
																				24
																				35
																				74
																				17

Note:  
 Blank cell indicates constituent result was below the detection limit.  
 1. Chromium (VI) analysis was performed if total Chromium exceeded 0.10 mg/kg.

**TABLE 6**  
**COMPARISON OF SITE TITLE 22 METALS CONCENTRATIONS IN SOIL SAMPLES**  
**WITH COMMON SOIL CONCENTRATIONS**  
**AND STATE THRESHOLD LIMIT VALUES**

Boeing Realty Company, C-6 Facility  
Los Angeles, California  
K/J 984006.00

Tested Inorganic Chemical	Number of Analyses	Number of Detections	Detection Rate	Concentration Detected at C-6 Facility (mg/kg)			Common Range in Soils <sup>(a)</sup> (ppm)	CCR TTLC <sup>(b)</sup> Value (mg/kg)	STLC <sup>(c)</sup> Value (mg/l)
				Min.	Max.	Avg.			
Antimony	796	0	0.0%	0	0	0	<1 - 2.6 <sup>(d)</sup>	500	15
Arsenic	796	8	1.0%	12	350	110	1 - 50	500	5
Barium	796	796	100%	7	250	100	100 - 3,000	10,000	100
Beryllium	796	0	0.0%	0	0	0	0.1 - 40	75	0.75
Cadmium	796	4	0.5%	5	9	6	0.01 - 0.7	100	1.0
Chromium (VI)	796	0	0.0%	0	0	0	Not Available	500	560
Chromium Total	796	796	100%	3	150	25	1 - 1,000	2,500	5
Cobalt	796	796	100%	1	47	7	1 - 40	8,000	80
Copper	796	796	100%	1	81	13	2 - 100	2,500	25
Lead	796	11	1.4%	3	72	24	2 - 200	1,000	5
Mercury	796	0	0.0%	0	0	0	<0.01 - 4.6 <sup>(d)</sup>	20	0.2
Molybdenum	796	0	0.0%	0	0	0	<3 - 7 <sup>(d)</sup>	3,500	350
Nickel	796	795	100%	2	140	12	5 - 500	2,000	20
Selenium	796	0	0.0%	0	0	0	0.1 - 2	100	1
Silver	796	0	0.0%	0	0	0	0.01 - 5	500	5
Thallium	796	0	0.0%	0	0	0	2.4 - 31 <sup>(d)</sup>	700	7
Vanadium	796	795	100%	5	66	28	20 - 500	2,400	24
Zinc	796	796	100%	4	120	41	10 - 300	5,000	250

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

ppm = parts per million

(a) *Chemical Equilibria in Soils*. Willard L. Lindsay, John L. Wiley & sons, NY, 1979, unless noted otherwise.

(b) California Code of Regulations (CCR), Title 22, Total Threshold Limit Concentration (TTLC) value. Value set to define a California hazardous waste based on the total concentration.

(c) CCR, Title 22, Soluble Threshold Limit Concentration (STLC) value. Value set to define a California hazardous waste based on leachate concentration.

(d) *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*.

H. T. Shacklette and J. G. Boemgen, USGS Professional Paper 1270, U.S. Government Printing Office, Washington, 1984.

**SUMMARY OF CHEMICAL ANALYTICAL RESULTS: VOLATILE AND SEMIVOLATILE ORGANIC COMPOUNDS,  
FUEL HYDROCARBONS, AND METALS IN GROUNDWATER**  
(EPA Methods 8260, 8270, 8015M, 6010, and 7196)

**Boeing Realy Company, C-6 Facility  
Los Angeles, California  
K/J 984006.00**

Analytical Method		EPA 8260												EPA 8015m		EPA 6010		EPA 7196		EPA 6010	
Area	Well	µg/L												µg/L	mg/L	mg/L		mg/L		mg/L	
		Detection Limit <sup>1</sup>	Benzene	Chloroform	1,1-DCA	1,2-DCA	1,1-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	1,1,2-TCA	TCE	cis-1,2-DCE	Bis(2-ethylhexyl) phthalate	Volatiles Fuel Hydrocarbons	Barium	Chromium (VI) <sup>3</sup>	Chromium (total)	Zinc		
														3.0	0.05	0.010	0.010	0.010	0.010		
Bldg. 1	TMW-1	5.0		7.1				900		12		540			0.20	0.20			0.022		
Bldg. 1	TMW-2	250		350				36,000	630	6,900		34,000	710		13	0.23	0.13	0.13	0.029		
Bldg. 2	TMW-3	50						200				8,100			3.5	0.053		0.016	0.093		
Bldg. 2	TMW-4	25			55	49	1,500	66		43	2,300	110			0.90	0.075		0.011	0.013		
Bldg. 2	TMW-5	25					460				3,700				1.3	0.025		0.015			
Bldg. 2	TMW-6	2.5		550			26				490	3.4			0.22	0.094		0.018	0.022		
Bldg. 1	TMW-7	13	40	26	73	60	3,000	83		20	29	3,500	120		1.2	0.066			0.017		
Bldg. 1	TMW-8	25	62	38	96	42	7,000	120		37	37	5,700	140	5.8	1.8	0.020			0.013		
Bldg. 1	TMW-8 (dup)	25	61	40	99	44	7,000	120		39	32	5,800	140		1.8	0.066			0.019		
Bldg. 1	TMW-9	1.0		2.9			24		2.1			290		61	0.14	0.060		0.015			

**Notes:**

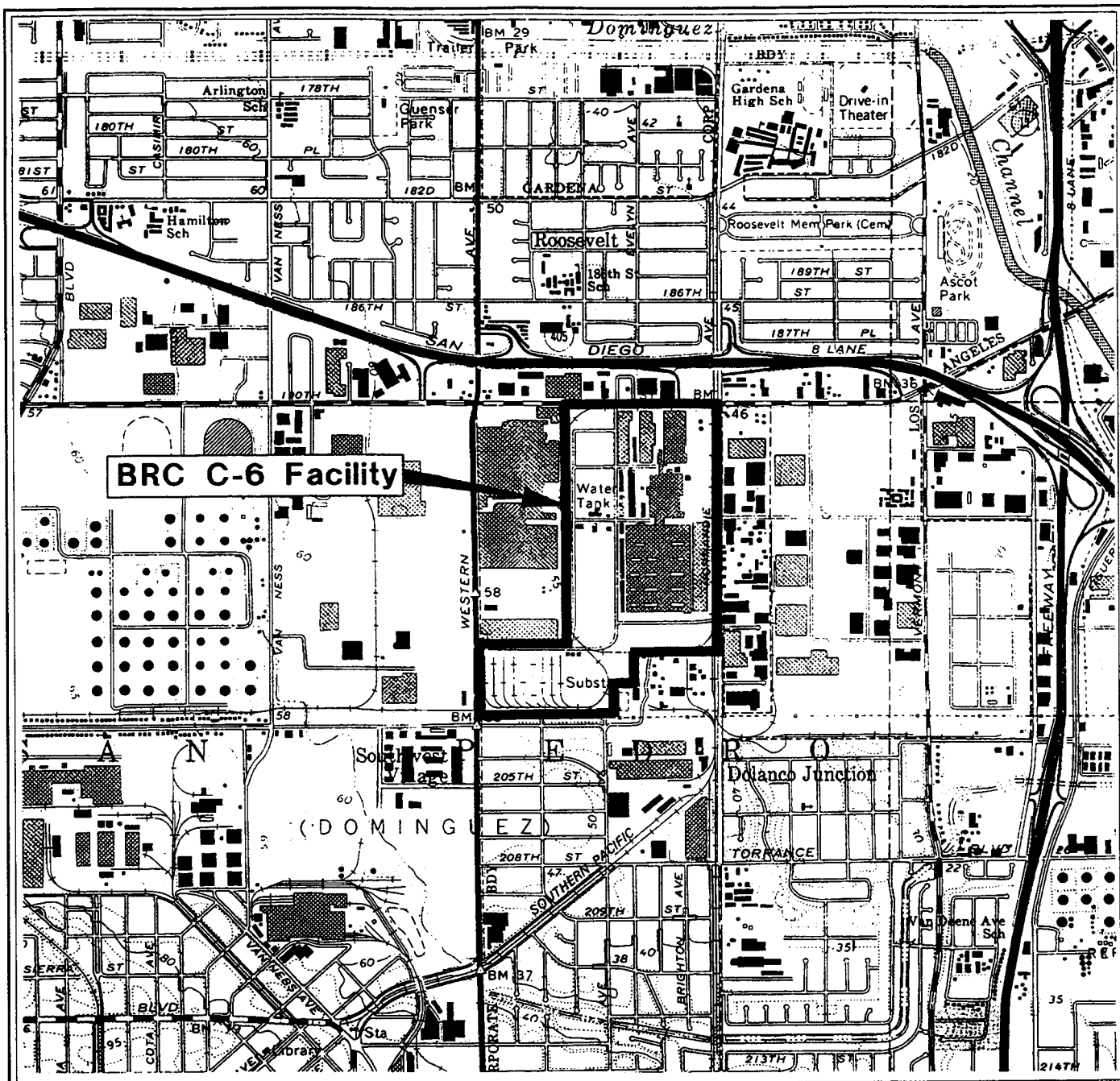
Blank cell indicates constituent result was below the detection limit.

Shaded cell indicates sample was not tested for the given constituent.

1. Detection limits varied between well samples for volatile organics analyses.
2. Detection limits were consistent between well samples for semivolatile organics, fuel hydrocarbons, and metals analyses.
3. Chromium (VI) analysis was performed only if total Chromium exceeded 0.10 mg/L.

## FIGURES

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Source: Basemap modified from  
U.S.G.S. Torrance, California  
7.5 Minute Quadrangle  
Photorevised 1981

0 2000 4000  
Approximate Scale in Feet



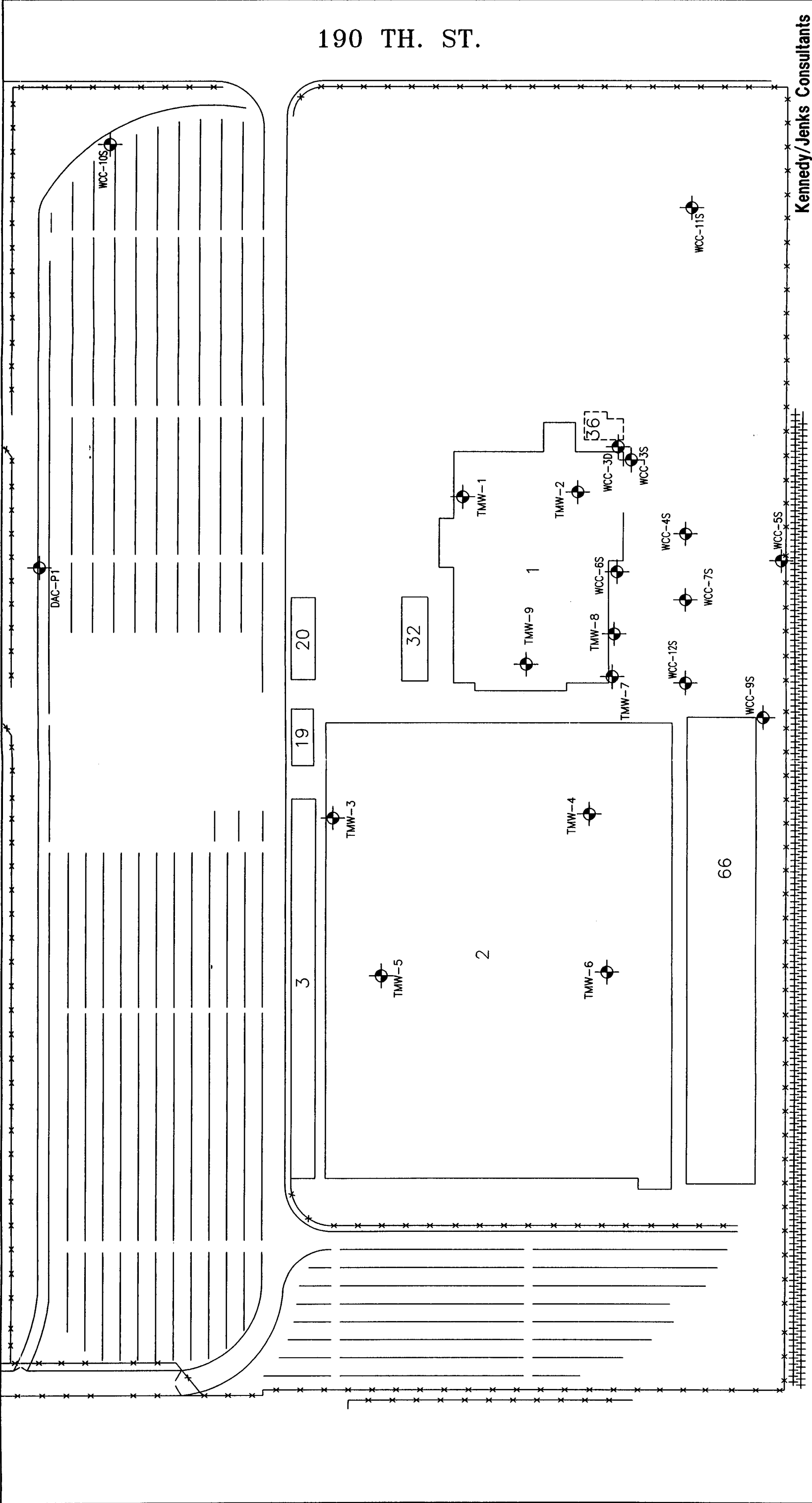
**Kennedy/Jenks Consultants**

Boeing Realty Company  
C6 Facility

Site Location Map

September 1999  
K/J 984006.00

Figure 1



**Kennedy/Jenks Consultants**  
Boeing Realty Corporation  
C6 Facility

Monitoring Well Locations

**LEGEND**  
Monitoring Well Location, Designation

N

0 200  
Scale in Feet

Note: Recent wells installed by others  
are not included on this map.

September 1999  
K/J 984006.00  
Figure 2

Locking Sanitary Cap

Due to temporary nature of the wells,  
the surface was packed and protected  
with a bentonite seal, but not completed

Casing to extend approximately 1 foot  
above the ground surface

Due to temporary nature of the wells,  
the annulus above the seal was not  
grouted.

Blank Casing: 2" PVC Sched. 40  
approximately 65 feet.

Seal: Hydrated Bentonite, 2-5 feet thick

Filter to extend 2 feet above top of screened casing

Screened Interval to extent 5 feet above water table

Screened Casing: 2" PVC Sched. 40  
20 feet long, 0.010" slot

Filter Pack: No. 212 Sand

Bottom of casing to be suspended 5  
feet above bottom of well

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C6 Facility

Typical Well Construction Detail  
Temporary Monitoring Wells

September 1999  
K/J 984006.00

Figure 3

190 TH. ST.

Kennedy/Jenks Consultants

Boeing Realty Corporation  
C6 Facility

Estimated Groundwater Elevation  
Contour Map, Shallow Zone,  
15 July 1998  
September 1999  
K/J 984006.00  
Figure 4

NORMANDIE AVE.

LEGEND

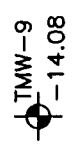
Monitoring Well Location, Designation  
and groundwater elevation, feet MSL,  
measured 7/15/98.

Groundwater Elevation contours, dashed  
where inferred, queried where uncertain.



0 200

Scale in Feet

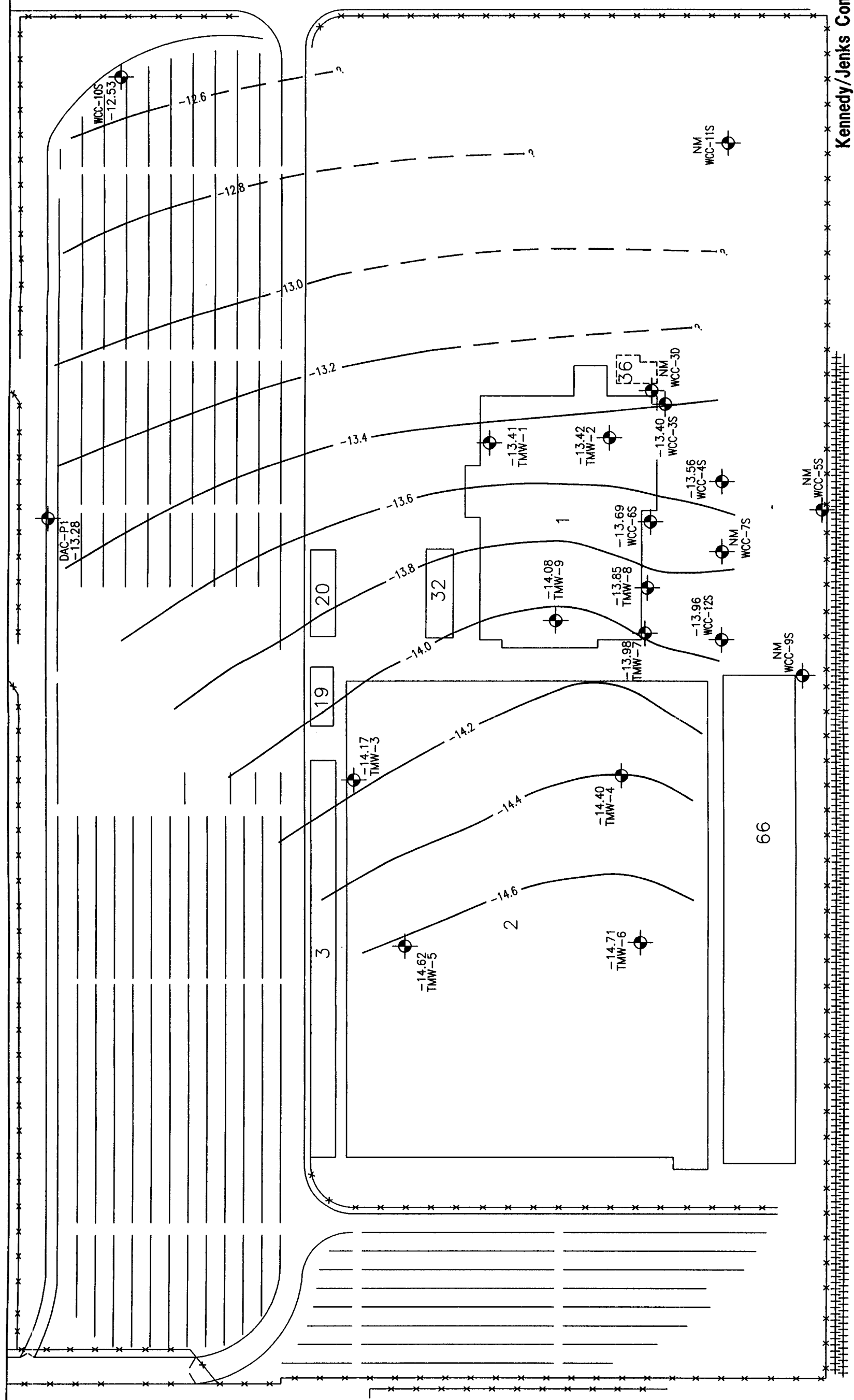


NM -

Not Measured

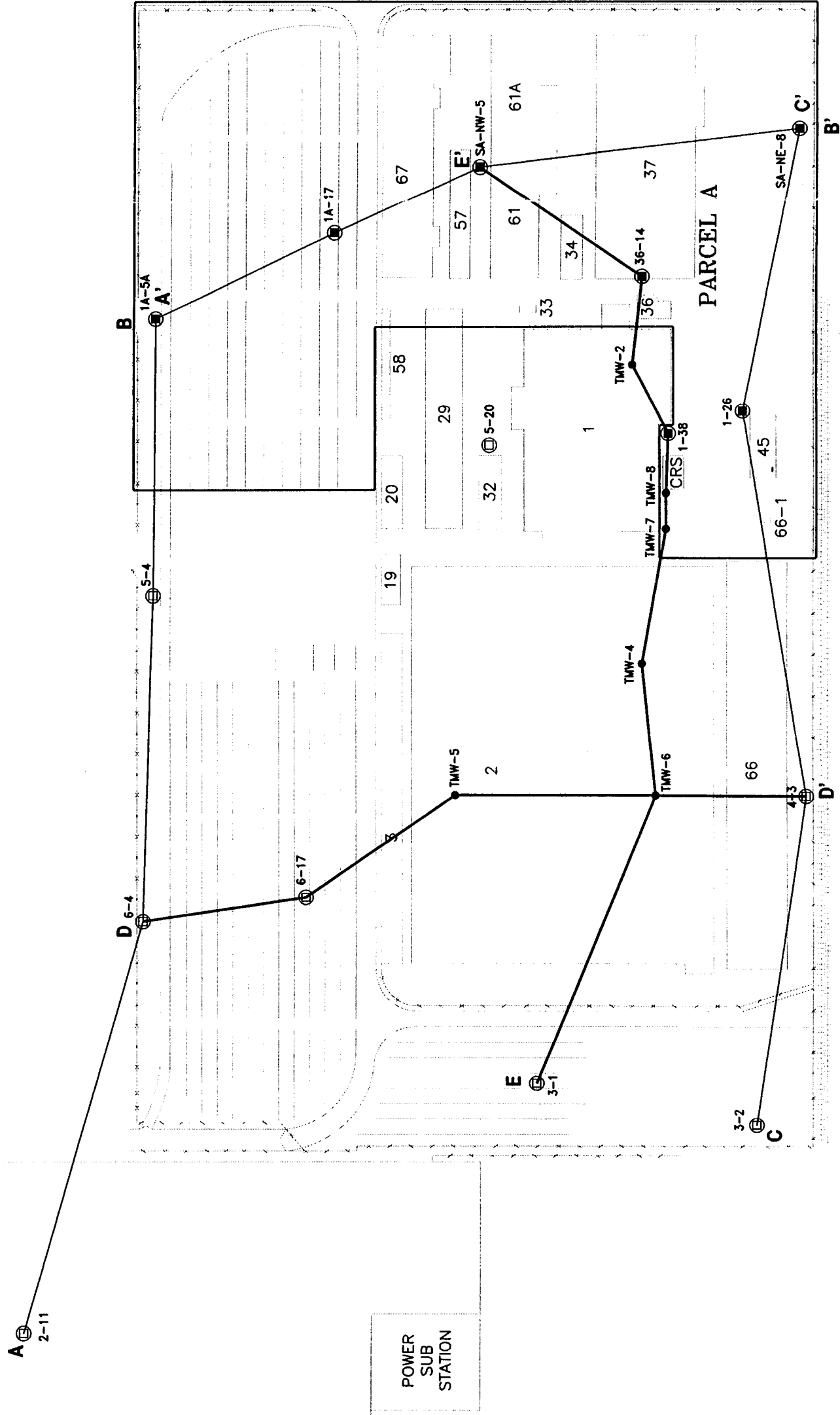
NOTE: 1) Contour Interval = 0.2 feet

2) Recent wells installed by others  
are not included on this map.



WESTERN AVE.

190 TH. ST.



NORMANDIE AVE.



LEGEND

- 2-11 ⊕ CONTINUOUS CORE BORING
- 1-26 ⊕ CONTINUOUS CORE BORING IN PARCEL A
- TMW-8 • TEMPORARY GROUNDWATER MONITORING WELL

- A - A' Kennedy/Jenks Consultants 1997a
- B - B' Kennedy/Jenks Consultants 1997a
- C - C' Kennedy/Jenks Consultants 1997a
- D - D' Figure 6
- E - E' Figure 7

GENERALIZED CROSS-SECTION LOCATION

Kennedy/Jenks Consultants

Boeing Realty Corporation  
C6 Facility

Cross-Section Locations

September 1999  
K/J 984006.00

Figure 5

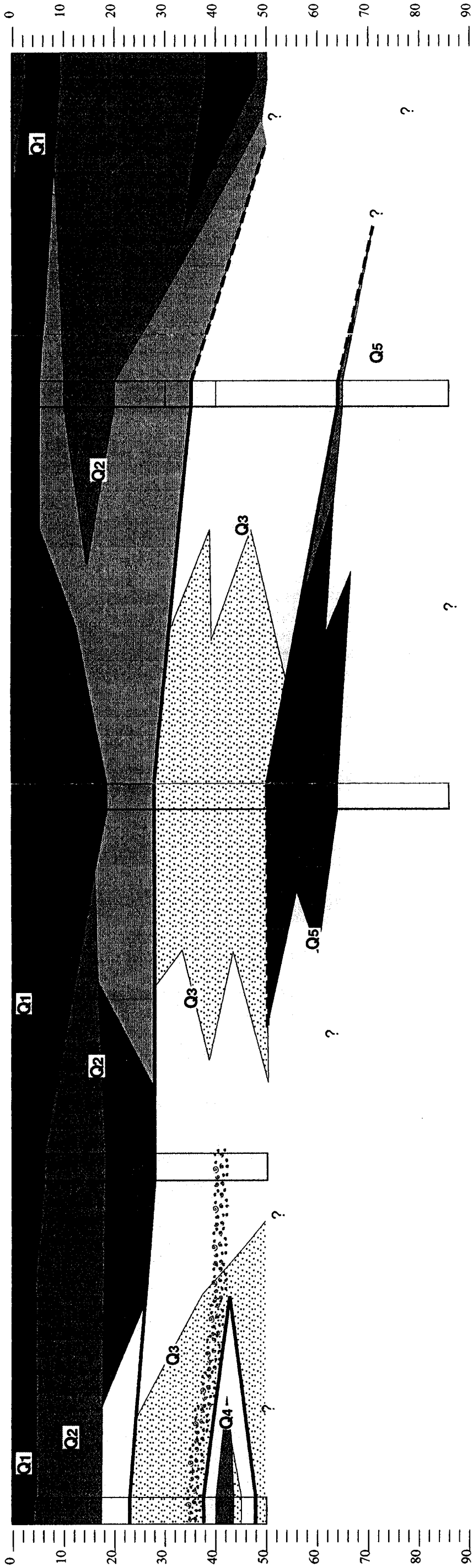
D  
West  
6-4

6-17

TMW-5

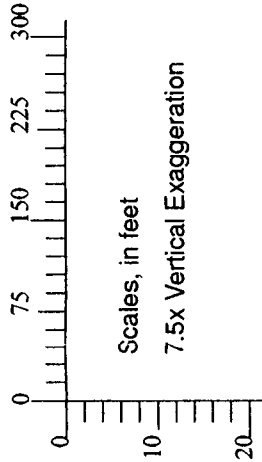
TMW-6

D'  
East  
4-3A



EXPLANATION

CL/CH	Clay, Silty Clay, or Sandy Clay
ML	Silt, Clayey Silt, or Sandy Silt
SC	Clayey Sand
SM	Silty Sand
SP/SW	Sand
SP	Shell Beds



Notes:

Stratigraphy is inferred based on the five soil boring control points shown.  
Baseline does not portray the minor differences in elevation between soil borings.

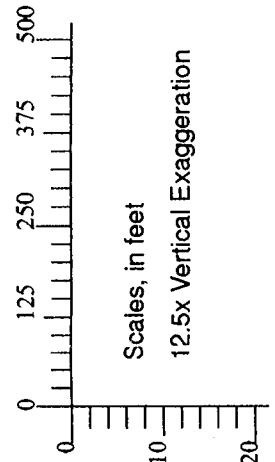
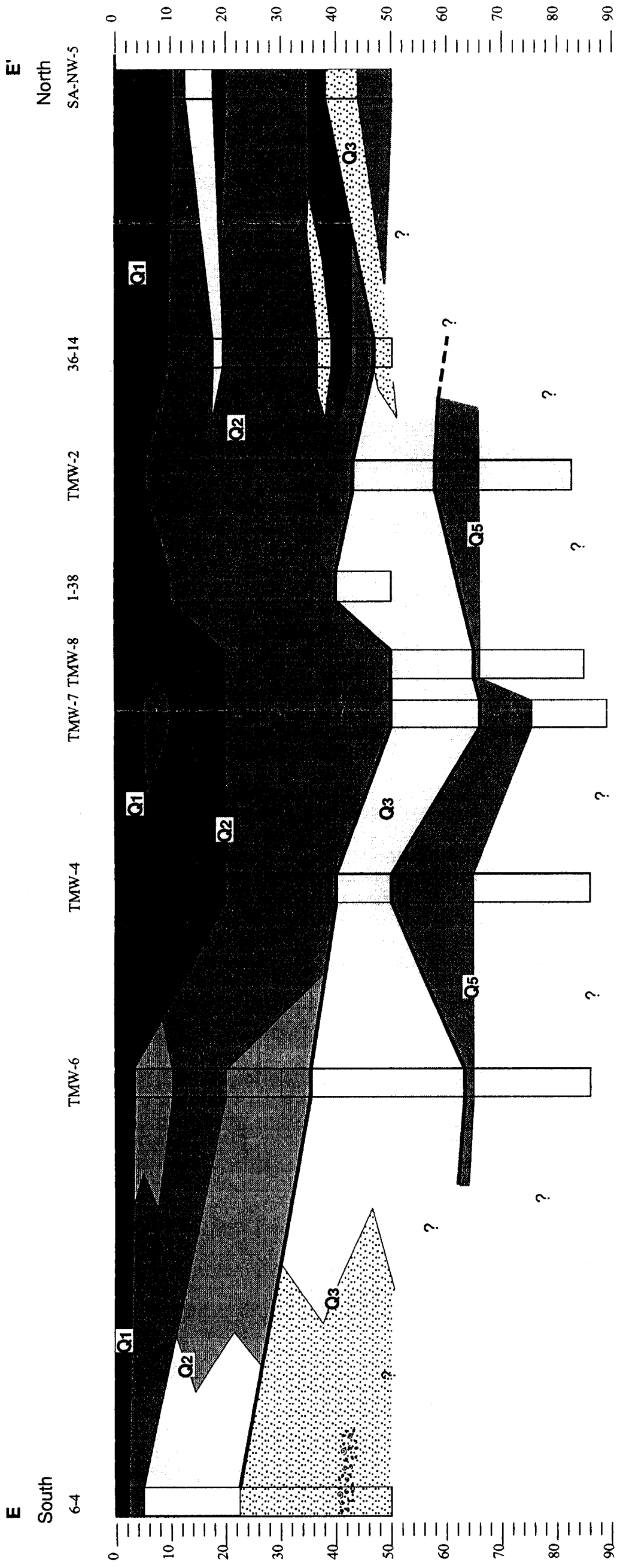
Kennedy/Jenks Consultants

Boeing Realty Corporation  
C6 Facility

Generalized Cross-Section D-D'

September 1999  
K/J 984006.00

Figure 6



EXPLANATION	
CL/CH	Clay, Silty Clay, or Sandy Clay
ML	Silt, Clayey Silt, or Sandy Silt
SC	Clayey Sand
SM	Silty Sand
SP/SW	Sand
SP	Shell Beds in Sand

Notes:

Stratigraphy is inferred based on the nine soil boring control points shown.

Baseline does not portray the minor differences in elevation between soil borings.

**Kennedy/Jenks Consultants**  
Boeing Realty Corporation  
C6 Facility

Generalized Cross-Section E-E'  
September 1999  
K/J 984006.00  
Figure 7

## **APPENDIX A**

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### **REGIONAL WATER QUALITY CONTROL BOARD CORRESPONDENCE**

STATE OF CALIFORNIA—ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, GOV.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION101 CENTRE PLAZA DRIVE  
MONTEREY PARK, CA 91754-2156  
(213) 266-7500  
FAX: (213) 266-7600

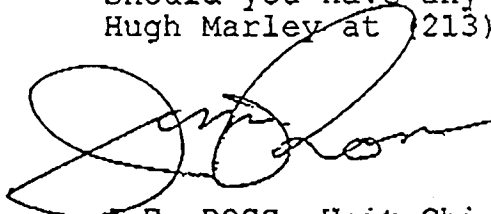
May 20, 1998

Mr. Chris Stoker  
Integrated Environmental Services, Inc.  
3990 Westerly Place, Suite 210  
Newport Beach, CA 92660TECHNICAL WORKPLAN, INSTALLATION OF TEMPORARY GROUNDWATER  
MONITORING WELLS - BOEING C-6 FACILITY, LOS ANGELES, CALIFORNIA  
(FILE NO. 100.315)

We have received and reviewed your Technical Workplan, Installation of Temporary Groundwater Monitoring Wells - Boeing C-6 Facility, Los Angeles, California, dated April 20, 1998. Our comments are as follows:

- 1) Include a contingency plan to collect and analyze soil samples if visible contamination, odors or PID readings indicate that contamination is present. Samples should be analyzed for the same suite of chemicals for which the groundwater is being tested.
- 2) Collect and analyze a soil sample from the capillary fringe in each boring. Samples should be analyzed for the same suite of chemicals for which the groundwater is being tested.
- 3) The workplan indicates that the annulus above the bentonite sanitary seal will be left open. The annulus must be filled should visible contamination, odors or PID readings indicate that soil contamination is present.

Should you have any questions regarding the above, please contact Hugh Marley at (213) 266-7669.

  
J.E. ROSS, Unit Chief  
Site Cleanup Unitcc: Ms. Karen Baker, DTSC, Long Beach  
Ms. Debbie Oudiz, Office of Scientific Affairs  
Mr. Mario Stavale, Boeing Realty Corporation  
Mr. Jeff Dhont, Federal EPALc'd  
5/26/98

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## **APPENDIX B**

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### BORING LOGS

BORING LOCATION										Boring/Well Name <b>TMW-1</b>	
Building 1										Project Name <b>Boeing C-6</b>	
DRILLING COMPANY					DRILLER					Project Number <b>984006.00</b>	
West Hazmat					Ruben Lares					ELEVATION	
DRILLING METHOD (S)					DRILL BIT (S) SIZE					TOTAL DEPTH	
CME 75, Hollow Stem Auger (LAR)					8"					Not Surveyed	
BLANK CASING					FROM	TO	FT		DATE STARTED		
2" PVC Schedule 40					+1	61			6/28/98		
PERFORATED CASING					FROM	TO	FT		DATE COMPLETED		
2" PVC Schedule 40, 0.010" slot					61	81			6/28/98		
SIZE AND TYPE OF FILTER PACK					FROM	TO	FT		DEPTH TO WATER		
Lonestar 2/12 Sand					59	86			66.0 ft.		
SEAL					FROM	TO	FT		LOGGED BY		
Enviroplug Medium Bentonite Chips					56	59			M. Balderman		
GROUT					FROM	TO	FT		SAMPLING METHODS		
No Grout (Temporary Well)									2" Split Barrel Sampler, 140 lb. Hammer		
										WELL COMPLETION	
										<input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE _____ FT	

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per ft.	Head Space Reading (in/L)						
			9 12 15 14 14 21 12 17 18	0.2	5			CL	7.5YR 3/3	Concrete, 8"
				0.8				CL	7.5YR 3/3	Fine Sandy CLAY: dark brown, damp, medium stiff to stiff, mottled with CaCO3
										hard nodules of carbonate up to 1/4", damp, medium stiff
			18 37 40	0.9	10			CL	7.5YR 4/4	Silty CLAY: brown, trace of fine sand, damp, stiff
					15					
			9 30 32	1.0	20			SM	7.5YR 4/4	Fine Silty SAND: brown, 60% sand, trace of fine mica, damp, dense
					25					
					30					
			8 30 33	1.4	30					
					35					

No Grout

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Driven	Recovered	Collected	Blows per 6"	Head Spent Reading (mg/L)						TMW-1
			11 38 40		35					Project Name
										Boeing C-6
										Project Number
										984006.00
					40	No Grout		SM	7.5YR 5/3	Fine Silty SAND: brown, 80% sand, trace of fine mica, damp, dense
			8 40 45	2.0	50	Blank Casing		SM	7.5YR 4/2	brown, 65% sand, minor clay, very dense
					55	Bentonite Seal				
					60	Sand Filter				
						Screened Casing				
			22 43 50 21 37 50	3.9 5.1	65	Depth to Water		SM/ SP &CL	7.5YR 4/2	interbedded with fine sand, moist water at 66 feet interbedded with fine sandy clay
					70					
					75					
					80	Bottom of Screen				

# Well Construction Log

## Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Recovered	Collected	Blow per ft	Head Space Reading (mg/L)	Project Name						
				80						TMW-1
					Bottom of Screen					Boeing C-6
				85	Bottom of Well					984006.00
										Fine Silty SAND (continued)
				90						
				95						
				100						
				105						
				110						
				115						
				120						
				125						
										Boring Terminated at 86 feet.

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Building 1</b>		Boring/Well Name <b>TMW-2</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Tracy</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>62</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>87 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>62</b> TO <b>82</b> FT	DATE STARTED <b>6/28/98</b>	DATE COMPLETED <b>6/28/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>57</b> TO <b>87</b> FT	DEPTH TO WATER <b>67.0 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>51</b> TO <b>57</b> FT	LOGGED BY <b>J. Knight</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Stamp Reading (mg/L)						
										Concrete, 6"
								CL	2.5Y 4/4	Silty CLAY: olive brown, slightly moist, stiff
					5			ML	10YR 4/6	Clayey SILT: dark yellowish brown, slightly moist, stiff
			17 26 31	100	10				2.5Y 4/4	olive brown, hard
			10 13 30	104	20				2.5Y 5/4	decreasing clay, very stiff
			12 21 31	190	30					
					35					

No Grout

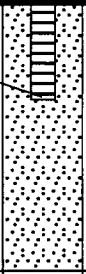

# Well Construction Log

## Kennedy/Jenks Consultants

[illegible]

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name <u>TMW-2</u>	Project Name <u>Boeing C-6</u>	Project Number <u>984006.00</u>
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)								
					80	 <p>Bottom of Screen</p>				Silty CLAY (continued)		
					85							Bottom of Well
					90					Boring Terminated at 87 feet.		
					95							
					100							
					105							
					110							
					115							
					120							
					125							

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Building 2, Patio 11 West</b>		Boring/Well Name <b>TMW-3</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger (LAR)</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+0.5</b> TO <b>62.5</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>87 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>62.5</b> TO <b>82.5</b> FT	DATE STARTED <b>7/21/98</b>	DATE COMPLETED <b>7/21/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>60</b> TO <b>85.6</b> FT	DEPTH TO WATER <b>67 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>60</b> TO <b>58</b> FT	LOGGED BY <b>M. Balderman</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)						
			6 8 10 6 9 20 20 22 28	10.8 9.7	5			CL	2.5YR 3/1	Concrete, 8" Silty CLAY: dark reddish gray, minor fine sand, damp, medium stiff
			5 9 20	13.9	10			ML	2.5Y 3/3	brown, stiff, mottled with light tan CaCO3
			25 35 40	6.2	20			CL	2.5Y 4/3	Fine Sandy SILT: dark olive brown, 40% sand, minor clay, damp, very stiff
					25					
					30					
			12 22 45	10.4	30			SM	10YR 6/4	Fine Sandy CLAY: olive brown, 30% sand, damp, stiff
					35					

No Grout

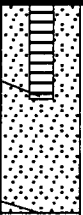

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)						TMW-3
					35					Project Name
										Boeing C-6
										Project Number
										984006.00
										Fine Silty SAND (continued)
			12 24 30	17.5	40			SM	10YR 6/2	light brownish gray, 75% sand, damp, dense
						No Grout				
			24 21 30	6.3	50	Blank Casing		SM	10YR 5/4	yellowish brown, 70% sand, trace of fine mica, damp, dense
					55					
						Bentonite Seal				
					60	Sand Filter				
						Screened Casing				
			12 28 50 14 25 50	7.2	65	Depth to Water		CL	5GY 6/1	Silty CLAY: greenish gray, minor fine sand, moist, very stiff
										water at 67'
					70					sandy
					75					
					80					

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name <u>TMW-3</u>	Project Name <u>Boeing C-6</u>	Project Number <u>984006.00</u>
Given	Recovered	Collected	Blows per foot	Head Space Reading (mg/L)								
					80	 <p>Bottom of Screen</p> <p>Bottom of Well</p>				Silty CLAY (continued)		
					85							
					90							
					95							
					100							
					105							
					110							
					115							
					120							
					125							

Boring Terminated at 87 feet.

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Building 2, Patio 11 East</b>		Boring/Well Name <b>TMW-4</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger (LAR)</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>61</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>86 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>60</b> TO <b>80</b> FT	DATE STARTED <b>6/30/98</b>	DATE COMPLETED <b>6/30/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>58</b> TO <b>86</b> FT	DEPTH TO WATER <b>66.0 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>55.5</b> TO <b>58</b> FT	LOGGED BY <b>M. Balderman/ J. Knight</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Reading (mg/L)						
			20 30 30	1.1				CL	7.5YR 4/4	Concrete, 4"
			30 50	0.6	5			CL	2.5Y 4/4	Silty CLAY: brown, minor fine sand, damp, stiff
			17 20 30	0.7	10			CL	10YR 5/4	Fine Sandy CLAY: olive brown, 30% fine sand, dry, hard
					15					
				0.9	20			ML	10YR 5/4	Fine Sandy CLAY: yellowish brown, 35% fine sand, damp, stiff
					25					
			18 32 50	0.9	30			ML	10YR 5/3	Clayey SILT: yellowish brown, minor fine sand, damp, stiff
					35					

No Grout

# Well Construction Log

## Kennedy/Jenks Consultants

SAMPLES						Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Recovered	Collected	Blows per ft	Head Space Reading (in/L)		Project Name						
					35						<b>TMW-4</b>
					40	No Grout	SM	10YR 4/3			<b>Boeing C-6</b>
		22	50	1.0							<b>984006.00</b>
					50	Blank Casing	ML	2.5Y 4/4			Fine Silty SAND with Clay (continued)
		20	50	0							
					55	Bentonite Seal					
					60	Sand Filter					
					65	Screened Casing	SM	2.5Y 4/3			Fine Silty SAND: brown, 70% fine sand, trace of fine mica, damp, dense.
		18	45	17.1		Depth to Water					
		50									
					70						
					75						
					80	Bottom of Screen					
											Silty SAND: olive brown, fine, wet, very dense, with lenses of clayey silt water at 66'

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)						Project Name
					80					TMW-4
										Boeing C-6
										984006.00
										Silty SAND (continued)
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

# Well Construction Log

Kennedy/Jenks Consultants

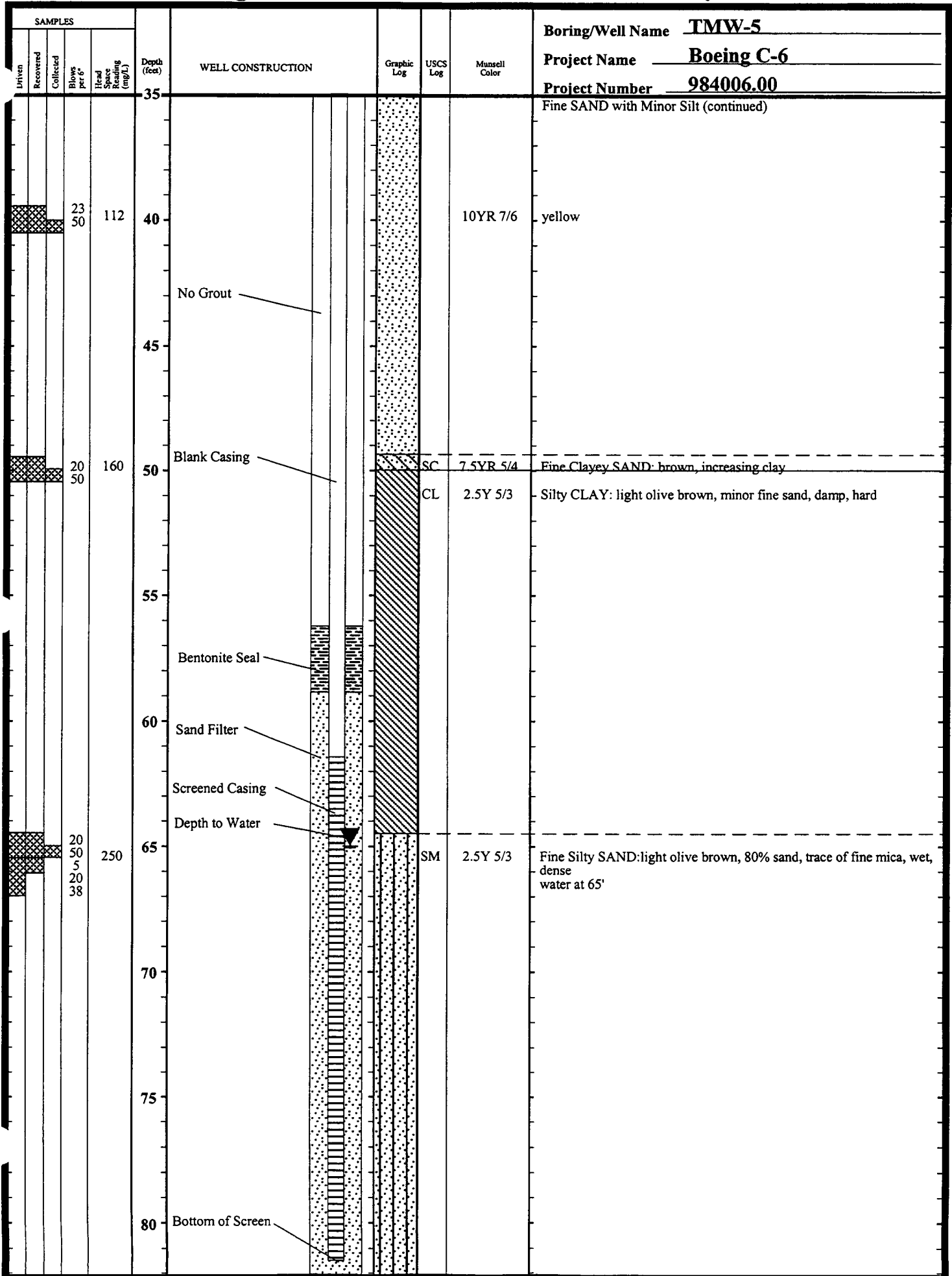
BORING LOCATION <b>Building 2, Patio 31 West</b>		Boring/Well Name <b>TMW-5</b>	
DRILLING COMPANY <b>West Hazmat</b>		DRILLER <b>Ruben Lares</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger (LAR)</b>		Project Name <b>Boeing C-6</b>	
		Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>61.3</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>86 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>61.3</b> TO <b>81.3</b> FT	DATE STARTED <b>7/2/98</b>	DATE COMPLETED <b>7/2/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>58.9</b> TO <b>86</b> FT	DEPTH TO WATER <b>65.0 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>56.2</b> TO <b>58.9</b> FT	LOGGED BY <b>M. Balderman</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Lead Space Reading (in./ft.)						
			7 10 14	3.2				CL	5YR 4/2	Concrete, 6"
			25 50	7.9	5			CL	7.5YR 4/3	Silty CLAY: dark reddish gray, minor fine sand, damp, medium stiff
			12 17 20	22.2	10			SC/ CL	7.5YR 5/2	Fine Sandy CLAY: brown, 30% fine sand, damp, hard
			20 50	28.0	20			CL	7.5YR 5/2	Fine Sandy CLAY/ Clayey SAND: brown, 50% fine sand, damp dense
					25					
			20 25 45	90	30			SP	5GY 6/1 10YR 5/6	Fine Sandy CLAY: brown, 35% fine sand, damp, hard
					35					Fine SAND with minor Silt: mottled gray and yellowish brown, trace of fine mica, damp, dense

No Grout



# Well Construction Log

Kennedy/Jenks Consultants



# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name <u>TMW-5</u>	Project Name <u>Boeing C-6</u>	Project Number <u>984006.00</u>
Soils Recovered	Soils Collected	Blows per foot	Head Space Reading (in/L)									
				80	Bottom of Screen					Fine Silty SAND (continued)		
				85	Bottom of Well							
				90						Boring Terminated at 86 feet.		
				95								
				100								
				105								
				110								
				115								
				120								
				125								

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Building 2, Patio 31 East</b>		Boring/Well Name <b>TMW-6</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger (LAR)</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>61.2</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>86 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>61.2</b> TO <b>81.2</b> FT	DATE STARTED <b>7/1/98</b>	DATE COMPLETED <b>7/1/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>59.1</b> TO <b>86</b> FT	DEPTH TO WATER <b>65.5 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>56.5</b> TO <b>59.1</b> FT	LOGGED BY <b>M. Balderman</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (in/g/L)						
			3 4 8	280				CL	7.5YR 3/2	Concrete, 6" Fine Sandy CLAY: dark brown, 30% fine sand, wet, medium stiff
			7 22 24	2900	5			SC	7.5YR 4/4	Fine Clayey SAND: brown, 60% fine sand, moist, dense
			11 24 30	0	10			ML	10YR 5/3	Clayey SILT: brown, 20% fine sand, moist, stiff
			12 15 17	0	20			SC	10YR 4/4	Fine Clayey SAND: dark yellowish brown, 55% sand, damp, dense
			31 33 50	4.3	30			SC SM	7.5YR 5/3	Fine Clayey/Silty SAND: brown, 70% sand, trace of fine mica, damp, dense
					35					

No Grout

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Recovered	Collected	Blows per 6"	Head Space Reading (in/L)							TMW-6
					35					Project Name
										Boeing C-6
										Project Number
										984006.00
										Fine Clayey/Silty SAND (continued)
		11 14 22	2.9		40	No Grout		SM	10YR 5/6	Fine Silty SAND: yellowish brown, 75% fine sand, trace of fine mica, damp, dense
		23 50	1.4		50	Blank Casing		SM	10YR 5/4	yellowish brown
					55					
					60	Bentonite Seal				
						Sand Filter				
						Screened Casing				
		22 50 25 50	0		65	Depth to Water		ML	2.5Y 5/2	Clayey SILT: grayish brown, 30% fine sand, moist, hard, grading to gray sand at 65'
								SM	5Y 4/2	Fine Silty SAND: olive gray, 85% sand, trace of fine mica, wet, dense water at 65.5'
					70					
					75					
					80	Bottom of Screen				

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Driven	Recovered	Collected	Blows per 6"	Head Spent Reading (mg/L)						Project Name
					80					TMW-6
										Boeing C-6
										984006.00
										Fine Silty SAND (continued)
					85					
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Outside the Southeast Corner of Building 1</b>		Boring/Well Name <b>TMW-7</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75. Hollow Stem Auger (LAR)</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>64</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>89.5 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>64</b> TO <b>84</b> FT	DATE STARTED <b>6/29/98</b>	DATE COMPLETED <b>6/29/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>62</b> TO <b>89.5</b> FT	DEPTH TO WATER <b>66 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>56</b> TO <b>62</b> FT	LOGGED BY <b>M. Balderman</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES				Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per ft						
			5 5 6	2.3			CL	7.5YR 4/2	Asphalt, 3" Silty CLAY: brown, minor fine sand, damp, soft
			12 50	0.7			ML	7.5YR 4/4	Clayey SILT: brown, 20% fine sand, damp, stiff
			12 30 42	0.4			CL	2.5Y 5/3	Silty CLAY: light olive brown, minor fine sand and carbonate, damp, stiff
			13 10 15	0.5			ML	2.5Y 4/3	Clayey SILT: olive brown, minor fine sand, trace of fine mica and carbonate, damp, medium stiff
			14 12 20	1.3			ML	2.5Y 5/4	Clayey SILT: light olive brown, minor fine sand, carbonate nodules to 3/8", damp, stiff
					No Grout				

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)						Project Name
					35					TMW-7
										Boeing C-6
										Project Number
										984006.00
										Clayey SILT (continued)
					40					
			12 18 31	1.7						
					45					
						No Grout				
					50					
			20 50	1.4				SM	10YR 6/4	Silty SAND: light yellowish brown, 70% fine sand, damp, dense
						Blank Casing				
					55					
						Bentonite Seal				
					60					
					65					
			12 17 19 11 17 21			Depth to Water		SM	2.5Y 4/2	Silty SAND: dark grayish brown, 75% fine sand, trace of fine mica, wet dense, with a clayey silt lense from 65 to 65.5'
						Sand Filter		SM ML	2.5Y 4/3	Fine Sandy SILT/Silty SAND: olive brown, laminated with clayey silt, wet, dense
						Screened Casing				Water at 66'
					70					
					75					
					80					

## Well Construction Log

## Kennedy/Jenks Consultants

SAMPLES						Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Mussell Color	Boring/Well Name
Recovered	Collected	Blows per 6"	Head Space Reading (in/L)		Project Name						
						80					<b>TMW-7</b>
											<b>Boeing C-6</b>
											<b>984006.00</b>
											Fine Sandy SILT/ Silty SAND (continued)
						85					
						90					Boring Terminated at 89.5 feet.
						95					
						100					
						105					
						110					
						115					
						120					
						125					

# Well Construction Log

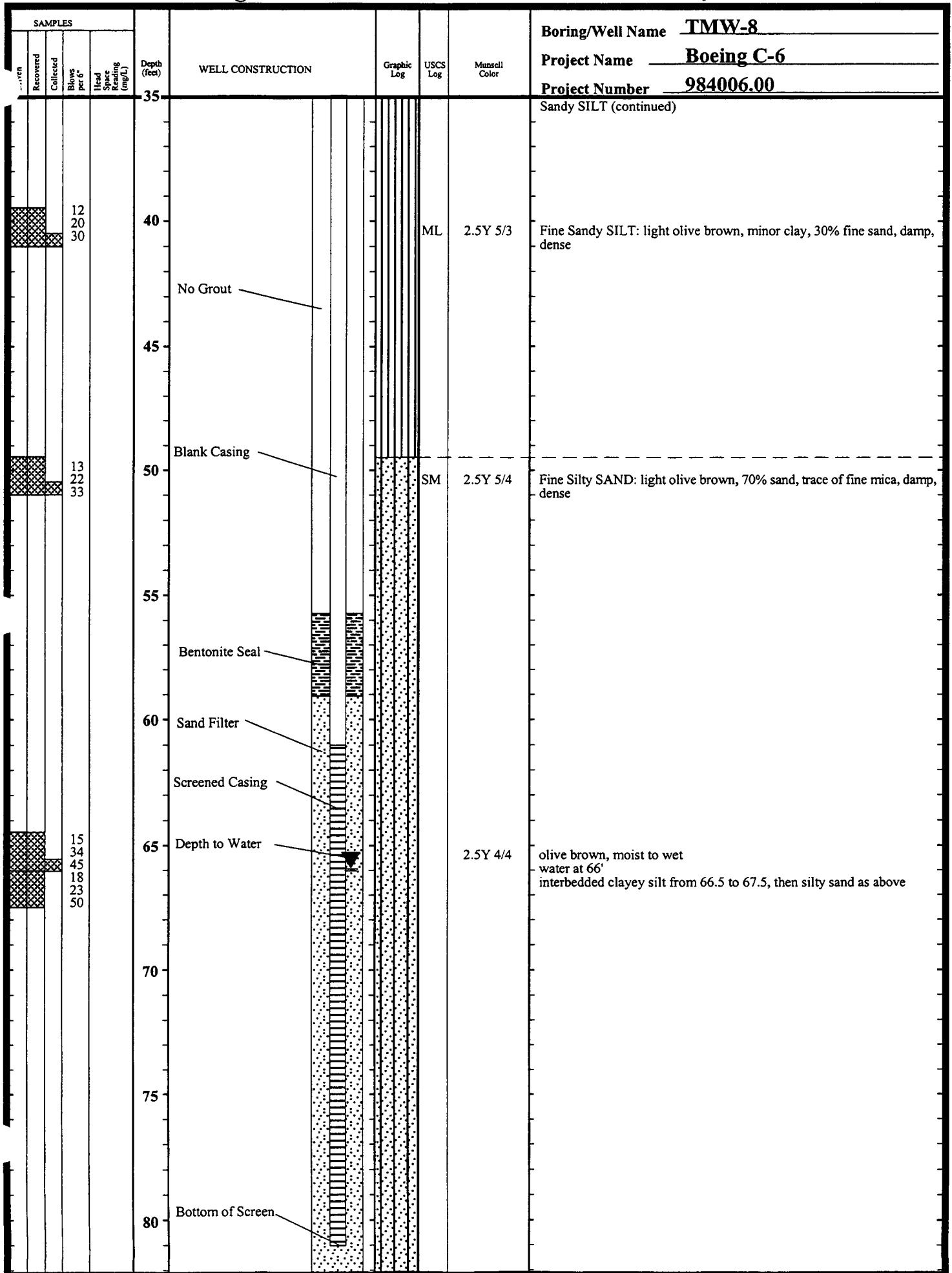
Kennedy/Jenks Consultants

BORING LOCATION <b>Outside and East of Building 1</b>		Boring/Well Name <b>TMW-8</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>61</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>86 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>61</b> TO <b>81</b> FT	DATE STARTED <b>6/29/98</b>	DATE COMPLETED <b>6/29/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>59</b> TO <b>85.5</b> FT	DEPTH TO WATER <b>66.4 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>55.8</b> TO <b>59</b> FT	LOGGED BY <b>M. Balderman</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Stamp Reading (eng/L)						
			6 30 32					CL	7.5YR 4/3	Asphalt, 3"
			8 18 40		5					Silty CLAY with minor Fine Sand: brown, local fine to coarse sand partings, damp, stiff
			27 50		10			CL	7.5YR 4/4	brown, hard
			8 20 23		20			ML	2.5Y 4/3	Clayey SILT: olive brown, 20% fine sand, damp, stiff
			7 14 30		30	No Grout				scattered carbonate nodules to 1/4"
					35					



# Well Construction Log

Kennedy/Jenks Consultants



# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name <u>TMW-8</u>
Driven	Recovered	Collected	Blows per 6"	Head Spent Reading (mg/L)						Project Name <u>Boeing C-6</u>
					80					Project Number <u>984006.00</u>
						Bottom of Screen				Fine Silty SAND (continued)
					85	Bottom of Well				
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Boring Terminated at 85.5 feet.

# Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Building 1</b>		Boring/Well Name <b>TMW-9</b>	
DRILLING COMPANY <b>West Hazmat</b>	DRILLER <b>Ruben Lares</b>	Project Name <b>Boeing C-6</b>	
DRILLING METHOD (S) <b>CME 75, Hollow Stem Auger</b>	DRILL BIT (S) SIZE <b>8"</b>	Project Number <b>984006.00</b>	
BLANK CASING <b>2" PVC Schedule 40</b>	FROM <b>+1</b> TO <b>61</b> FT	ELEVATION <b>Not Surveyed</b>	TOTAL DEPTH <b>86 ft.</b>
PERFORATED CASING <b>2" PVC Schedule 40, 0.010" slot</b>	FROM <b>61</b> TO <b>81</b> FT	DATE STARTED <b>6/30/98</b>	DATE COMPLETED <b>6/30/98</b>
SIZE AND TYPE OF FILTER PACK <b>Lonestar 2/12 Sand</b>	FROM <b>59</b> TO <b>86</b> FT	DEPTH TO WATER <b>66 ft.</b>	
SEAL <b>Enviroplug Medium Bentonite Chips</b>	FROM <b>56.5</b> TO <b>59</b> FT	LOGGED BY <b>J. Knight</b>	
GROUT <b>No Grout (Temporary Well)</b>	FROM <b></b> TO <b></b> FT	SAMPLING METHODS <b>2" Split Barrel Sampler, 140 lb. Hammer</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <b>NONE</b> <input type="checkbox"/> STAND PIPE <b></b> FT

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
Driven	Recovered	Collected	Blows per 6"	Head Spore Reading (mg/L)						
			12 14 21	52.0				ML	10YR 4/6	Concrete, 8" Clayey SILT: dark yellowish brown, trace of fine sand, slightly moist, very stiff
			12 22 40	86.0	5			CL	10YR 3/6	Silty CLAY: dark yellowish brown, some fine sandy lenses, slightly moist, hard
			27 30 30	85.7	10				10YR 5/4	yellowish brown, dry, hard
			12 17 23	48.2	20			ML	2.5Y 5/4	Clayey SILT: light olive brown, trace of fine sand, dry, very stiff
			21 28 50	51.4	30			ML	2.5Y 5/6	Sandy SILT: light olive brown, fine sand, slightly moist, hard
					35					

No Grout

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name <u>TMW-9</u>
Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)						Project Name <u>Boeing C-6</u>
					35					Project Number <u>984006.00</u>
										Sandy SILT (continued)
			20 25 30	74.1	40	No Grout		SM	2.5Y 5/6	Silty Fine SAND: light olive brown, slightly moist, dense
			23 50	114	50	Blank Casing				increasing silt content, very dense
					55					
					60	Bentonite Seal				
						Sand Filter				
						Screened Casing				
			12 32 50 42 30 32	159	65	Depth to Water		SM	2.5Y 4/3	SAND with Silt: olive brown, fine, very moist, very dense, with silt lenses water at 66'
					70					
					75					
					80	Bottom of Screen				

# Well Construction Log

Kennedy/Jenks Consultants

SAMPLES					Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Boring/Well Name
Recoverd Collected	Blows per 6"	Head Space Reading (mg/L)		Project Name						
					80					TMW-9
										Boeing C-6
										984006.00
										SAND with Silt (continued)
					85					
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

## **APPENDIX C**

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LABORATORY REPORTS FROM SOIL ANALYSES  
(LOCATED IN VOLUME II)

## **APPENDIX D**

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### WELL SURVEY REPORT

## Bill Carr Survey data Sept. 2, 1998

Bill Carr Survey Pt. No.	Tait & Associates data		Desc.	Top of	
	Northing	Easting		Casing Elev.	adjacent surface Elev. Desc.
1541	12988.6300	11194.8600	DAC-P1	52.30	52.8 dirt
1542	14038.9800	11338.9000	WCC-10S	51.14	51.29 conc.
1543	13870.6800	12744.0100	WCC-11S	49.85	49.5 dirt
1544	13265.8700	12583.6100	WCC-03D	51.12	51.40 AC
1545	13238.9000	12608.5200	WCC-03S	51.12	51.38 AC
1546	13075.3000	12741.3500	WCC-04S	49.58	49.2 dirt
1547	12998.7000	12963.9000	WCC-05S	48.10	48.9 dirt
1548	12953.1000	12580.2400	WCC-06S	51.32	51.6 AC
1549	12868.6500	12730.3700	WCC-07S	(covered-found nothing)	
1550	12715.2100	12749.2600	WCC-12S	46.84	47.37 AC
1551	12627.9400	12928.8700	WCC-09S	46.90	47.39 conc.
1552	13143.4896	12211.9953	TMW-1	52.41	51.42 conc.
1553	13161.3821	12478.0859	TMW-2	52.12	51.43 conc.
1554	12315.4722	11909.5434	TMW-3	51.90	51.40 conc.
1555	12334.0904	12498.2124	TMW-4	51.85	50.61 conc.
1556	11931.4503	12038.4349	TMW-5	51.32	50.43 conc.
1557	11936.3211	12552.9324	TMW-6	51.18	50.43 conc.
1558	12701.2508	12560.6995	TMW-7	52.25	51.42 AC
1559	12812.4178	12571.9285	TMW-8	52.42	51.40 AC
1560	12740.0461	12344.5297	TMW-9	52.46	51.46 conc.

## **APPENDIX E**

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### WELL DEVELOPMENT RECORDS

PROJECT Boeing C-6

WELL NUMBER: TMW-1

BY: JJK

PID Reading: 11.4

Depth to Water: 65.91' (0943)

Total Depth: 79.95 Probe came up muddy

Total Depth after development:: 81.65 Probe came up clean

Water Column :  $14.04 \times 0.2 = 2.808 \times 3 = 8.424$

Water Added during Const.  $28 \times 3 = 84 \text{ gal}$

Total water to purge = 93 gal

# WELL DEVELOPMENT RECORD

PROJECT Boeing C-6

DATE 7-8-98

WELL NUMBER: TMW-2

BY: JK

PID Reading: 70 ppm

Depth to Water: 65.61 (0715)

Total Depth: 80.70 muddy

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
0729		Bail using 7' ss bailer		
0810		Bailing Slow, switch to tetlon bailer 10'		
0827		TEMP PH Cond 74.1 6.60 2400	20	4.6% murky, silty, light brown
0907		72.7 6.61 2240	40	4.6% murky, silty, light olive brown
0953		72.9 6.73 2040	60	murky, silty, light olive brown
1006		73.1 6.66 2140	70	"
1020		72.3 6.62 2190	75	murky, silty, light brown
1027		72.3 6.72 2030	80	murky, silty, light brown
1031	1031	72.2 6.74 2100	85	murky, silty, light brown finish
		DW 65.80		
		TOTAL GALLONS REMOVED	85	

Total Depth after development: 81.03 — no mud on probe after sounding TD.

ADDITIONAL NOTES: Water Column:  $15.09 \times 0.2 = 3.0 \times 3 = 9.0$  gal

Water added during construction:  $25 \times 3 = 75$  gal

Total water to purge: 84 gal

# WELL DEVELOPMENT RECORD

PROJECT BOWJA C-6

DATE 7/6/98

WELL NUMBER: TMD-04

BY: MB

PID Reading: 53

Depth to Water: 66.38 1648

Total Depth: 80.58 PROC

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1650				
		1718	21	
		T= 22.1 EC= 1310 pH=	7.23	WATER V. TURBID
		1739	40	
		T= 22.0 GC= 1200 pH=	7.17	WATER V. TURBID
		1810	65	
		T= 22.0 EC= 1340 pH=	7.25	WATER TURBID - DEEP SIFT
		1829	75	
		T= 22.0 EC= 1040 pH=	7.40	TURBIDITY > 200 - MINOR SIFT
		1830	80	
		T= 22.0 EC= 1250 pH=	7.33	TURBIDITY > 200 - MINOR SIFT
		1835	85	
		T= 22.0 EC= 1070 pH=	7.40	TURBIDITY > 200 - MINOR SIFT
		1840	90	
		T= 22.1 EC= 950	7.49	
		1842 T= 22.0 GC= 1140 pH= 7.40	92	
		TOTAL GALLONS REMOVED		

Total Depth after development: 79.9

DW= 66.38 - 1845

ADDITIONAL NOTES: Water Column = 16 x 0.6 = 9.6 gal

25 gal added during drilling - x 3 = 75 + 9.6 = 85 gal + develop.

# WELL DEVELOPMENT RECORD

PROJECT Boone C-6

DATE 7/7/98

WELL NUMBER: TW-05

BY: UAB

PID Reading: 10.1

Depth to Water: 66.08 @ 0933

Total Depth: 82.0

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1140		Bailing 57' SS Bailer		
	1206	T=22.2 EC=770 pH=7.02	20	TURBID
1227		T=22.0 EC=708 pH=7.18	40	TURBID
1250		T=22.0 EC=669 pH=7.27	60	TURBID
1314		T=22.0 EC=673 pH=7.24	80	> 200 NTU
1323		T=21.9 EC=670 pH=7.33	90	> 200 NTU
1331		T=21.8 EC=652 pH=7.39	95	> 200 NTU
1336		T=21.9 EC=649 pH=7.40	100	
	1336			
1341		DW- 66.13		
		TOTAL GALLONS REMOVED	100	

Total Depth after development: 81.1

ADDITIONAL NOTES: JAWOR COW-N =  $16 \times 0.2 = 3.2 \times 3 = 9.6$  GAL

30 gal added during drilling  $\times 3 = 90 + 9.6 = 100$  gal to develop

# WELL DEVELOPMENT RECORD

PROJECT Posina C-6

DATE 7/7/98

WELL NUMBER: TMW-06

BY: MB

PID Reading: 24

Depth to Water: 65.99 @ 0725

Total Depth: 81.2

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
0727		BAILING w/SS BAILER		
		0808	22	
		T=21.6 EC=1530 pH=6.80		TURBID
		0840	41	
		T=21.7 EC=1470 pH=6.94		TURBID
		0912	60	
		T=21.7 EC=1460 pH=6.95		TURBID
		0945	75	
		T=21.8 EC=1620 pH=7.08		TURBID
		1010	95	
		T=21.9 EC=1220 pH=7.16		TURBIDITY >200 NTU
		1017/T=21.7 EC=1200 pH=7.15	100	"
		1023/T=21.7 EC=1160 pH=7.20	105	"
		1030/T=21.6 EC=1170 pH=7.15	112	"
	1030	DW=66.08		
		TOTAL GALLONS REMOVED	112	

Total Depth after development: 80.7

## ADDITIONAL NOTES:

Water Column -  $15.2 \times 0.2 \times 3 \times 3 = 9$  GAL

Water Column -  $15.2 \times 0.2 \times 34 \times 3 = 102 + 9 = 111$  gal to develop

- CASING SLIGHTLY BENT - BAILER HANGING UP BUT GETTING TO TD w/ some work

01.20  
65.99  
15.21

# WELL DEVELOPMENT RECORD

PROJECT Bocun C-6

DATE 7/6/92

WELL NUMBER: TNW-07

BY: MB

PID Reading: 190

Depth to Water: 66.36 @ 1348

Total Depth: 83.4

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1354		Bailinck 15/16 BAILER		
		1417	22	
		T=22.8 EC=1490 pH=	7.01	WATER V. TURBID
		1448	42	
		T=22.8 EC=1460 pH=	7.07	WATER V. TURBID
		1513	63	
		T=22.9 EC=1440 pH=	7.06	WATER V. TURBID
		1522	72	
		T=22.8 EC=1450 pH=	7.14	TURBIDITY > 200 (loss slt)
		1530	80	
	1530	T=22.8 EC=1430 pH=	7.17	TURBIDITY > 200
		DW 66.42 @ 1534		
		TOTAL GALLONS REMOVED	80	

Total Depth after development: 83.4

ADDITIONAL NOTES: 23 GAL ADDED DURING CONST X 3 = 69

Water Gained =  $12.6 \times 0.2 = 3.7 \times 3 = 11.1$  - TOTAL TO REMAIN - 80 GAL

P.S.

186

# WELL DEVELOPMENT RECORD

PROJECT BOONE C-6

DATE 7/6/98

WELL NUMBER: TWJ-08

BY: MB

PID Reading: 44

Depth to Water: 66.43 @ 1120

Total Depth: 81.2 FTDC

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1130		BAILING 6/51 BAILER		MUDDY WATER
		1206- 20 GAL BAILLED		
		T=22.8 EC=1790 pH=6.7		WATER STILL TURBID
		CONTINUING TO BAIL		RESAND SITUATION BOTTOM UP
		1235- 40 GAL BAILLED		
		T=22.7 EC=1440 pH=6.8		- WATER TURBID
		1305- 60 GAL BAILLED		
		T=22.6 EC=1370 pH=6.8		- STILL TURBID- DARK SIFT
		1318- 70 GAL BAILLED		
		T=22.9 EC=1390 pH=6.7		- STILL TURBID
		1328- 80 GAL		
		T=22.5 EC=1370 pH=6.81		TURBIDITY > 200 NTU
		1336- 86 GAL		
	1336	T=22.7 EC=1380 pH=6.77		TURBIDITY > 200 NTU -
		1340 DW 66.47		
		TOTAL GALLONS REMOVED	86	

Total Depth after development: 81.05 FTDC

ADDITIONAL NOTES: WATER COLUMN:  $15.5 \times 0.2 = 3.3 \times 3 = 9.6$  GAL

WATER DURING CONSTRUCTION:  $24 \text{ GAL} \times 3 = 72$  - TOTAL 80 GAL TO DRAW

81

# WELL DEVELOPMENT RECORD

PROJECT ROSLINE C-6

DATE 7/7/98

WELL NUMBER: TMD-09

BY: WAB

PID Reading: 12

Depth to Water: 66.61 @ 1432

Total Depth: 81.52

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1456		Bail w/ 5' SK BAILER		
		WOULDN'T GET TO BOTTOM -		
1505		TRIED 11' X PVC BAILER - BETTER BUT STILL		
		BAILING SLOWLY		
1602		T=22.9 EC=1060 PH=6.97	20	V. TURBID
1652		T=22.8 EC=1220 PH=6.93	35	V. TURBID
	1700	Shut down to fix hydraulic leaks		
1715		ROSLINE BAILING		
1726		T=22.8 EC=1140 PH=7.09	42	V. TURBID
1754		T=22.7 EC=1000 PH=7.05	50	TURBID - DEEP SIFT
1801		T=22.8 EC=1010 PH=7.12	53	TURBID - DEEP SIFT
		DW 66.62 @ 1808		
		TOTAL GALLONS REMOVED		

Total Depth after development:: 79.6

ADDITIONAL NOTES:

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# WELL DEVELOPMENT RECORD

PROJECT \_\_\_\_\_

DATE 7/6/98

WELL NUMBER: TMW-09

BY: \_\_\_\_\_

PID Reading: 115

Depth to Water: 66' @ 155'

Total Depth: 215' TO C

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
1600		BAILING w/SS BAILER		
		1160 - CASING POINT ~ 15' ABOVE TD - TRUED SIGHT END		
		OF BAILER + GOT DOWN OK - THAT ONLY GOT		
		2 1/2 FEET LONG - 1/8" TO SLOW BAILING - MOVED OFF		
		- WILL TRY AGAIN IN AM w/ INTERMED LENGTH OF		
		PVC BAILER		
TOTAL GALLONS REMOVED				

Total Depth after development:: \_\_\_\_\_

ADDITIONAL NOTES:

WATER COLUMN =  $15 \times 0.22 \times 3 \text{ gal} \times 3 = 9 \text{ GAL}$

WATER ADDED DURING WORK CONT  $25 \text{ GAL} \times 3 = 75 + 9 = 84 \text{ GAL TO DEVELOP}$

21  
66.5  
14.5

# WELL DEVELOPMENT RECORD

PROJECT Bona 2-6

DATE 7/24/98

WELL NUMBER: Thin. 03

BY: MS

PID Reading: Nm

Total Depth: 82.55

Depth to Water: 66.10 ± 0.44

START TIME	STOP TIME	METHODS USED	GALLONS REMOVED	NOTES & WATER DESCRIPTION
0750		Bailing ~7' SS Bailer		CLEAR + STRAIGHT TO * TD)
0910		T=21.9 EC=1420 pH=7.02	30	V-TURBID
1024		T=21.9 EC=1290 pH=7.05	60	TURBID
1058		T=22.0 EC=1150 pH=7.05	68	TURBID
1117		T=21.9 EC=1280 pH=7.25	76	V TURBID - PULLING SLT OF BOTTOM
1142		T=22.0 EC=1260 pH=7.15	81	TURBID - LESS SLT
1154		T=22.1 EC=1170 pH=7.10	83	TURBID
1205	1205	T=22.0 EC=1170 p=7.14	85	TURBID - GETTING SLT
1210		DW-66.20		OFF BOTTOM
		TOTAL GALLONS REMOVED	85	

Total Depth after development: 83.05

ADDITIONAL NOTES: \* NOT QUITE STRAIGHT - BALLOR HANGING UP  
ABOUT 15 FEET ABOVE BOTTOM - SLOWING DOWN BALLING

## **APPENDIX F**

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### **GROUNDWATER PURGE AND SAMPLE FORMS**

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: Boeing C-6 WELL NUMBER: TMW-01

PROJECT NUMBER: 984006.00 PERSONNEL: MBEMLD

STATIC WATER LEVEL (FT): 65.82 MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Solinst

TIME START PURGE: 0915 PURGE DEPTH (FT) 75

TIME END PURGE: 1050

TIME SAMPLED: 1051-1055

COMMENTS: 0955 purged approx 10.5 gal - shut down pump not  
working - changed pump - resumed 1034

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
				2	4	6	
	<u>81.51</u>	<u>65.82</u>	<u>15.69</u>	<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	<u>2.5</u>

TIME	<u>0924</u>	<u>0933</u>	<u>0939</u>	<u>1040</u>	<u>1044</u>	<u>1048</u>	<u>(AFTER) 1055</u>
VOLUME PURGED (GAL)	<u>2.5</u>	<u>5.0</u>	<u>7.0</u>	<u>2.0*</u>	<u>4.2*</u>	<u>6.0*</u>	<u>7.0*</u>
PURGE RATE (GPM)	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.5</u>	<u>0.5</u>	<u>—</u>
TEMPERATURE (°C)	<u>24.4</u>	<u>23.8</u>	<u>23.4</u>	<u>23.7</u>	<u>23.7</u>	<u>23.6</u>	<u>23.3</u>
pH	<u>6.77</u>	<u>6.86</u>	<u>6.81</u>	<u>6.74</u>	<u>6.76</u>	<u>6.79</u>	<u>6.77</u>
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) <u>cm</u>	<u>3260</u>	<u>3320</u>	<u>3350</u>	<u>3470</u>	<u>3490</u>	<u>3500</u>	<u>3470</u>
DISSOLVED OXYGEN (mg/L)	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
eH(MV)Pt-AgCl ref.	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
TURBIDITY/COLOR	<u>189</u>	<u>191</u>	<u>&gt;200</u>	<u>&gt;200</u>	<u>135</u>	<u>80</u>	<u>67</u>
ODOR	<u>NONE</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>
NUMBER OF CASING VOLUMES REMOVED	<u>1.0</u>	<u>2.0</u>	<u>2.8</u>	<u>5.0</u>	<u>5.9</u>	<u>6.6</u>	<u>7.0</u>
DEWATERED?	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: BONNE C-6WELL NUMBER: TMCW-01PROJECT NUMBER: 984006.00PERSONNEL: MB + ML

## SAMPLE DATA:

TIME SAMPLED: 1051-1055

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RF2

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMCW01 W0715 98	3	VOA	HCL	No	3x42ml	6780	VLT GRAY	✓	8260 TPH-6	
"	3	1 Ltr Amber	—	No	3x1 Ltr	6780	"	✓	TPH-D 8080 8270	
"	1	500ml plac	HNO3	Yes	500ml	6780	"	✓	Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 17.5

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: Left in drum @ site

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?:

☒ YESper temp well  
NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?:

☒ YES

NO

WELL CASING OK?:

☒ YES

NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: WORKING INSIDE BLDG-1TEMPERATURE (SPECIFY °C OR °F): 70°FPROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? PUMP QUIT - WORKED INTERMITTENTLY- AFTER PUMPING ~10.5 GAL. WORKED NOT STAY ON - PULLED + RECONNECTEDWITH BACKUP TO COMPLETE PEECE + SAMPLE - TURBIDITY STAYED > 50 UNTLSAMPLED AFTER PURGING > 6 WELL VOLUMES. PER WORK PLAN.

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: <u>BOONG C-6</u>	WELL NUMBER: <u>TWJ-02</u>
PROJECT NUMBER: <u>984006.00</u>	PERSONNEL: <u>MBIMG</u>
STATIC WATER LEVEL (FT): <u>65.54</u>	MEASURING POINT DESCRIPTION: <u>TOC</u>
WATER LEVEL MEASUREMENT METHOD: <u>SOUND</u>	PURGE METHOD: <u>REDIPO 2</u>
TIME START PURGE: <u>1145</u>	PURGE DEPTH (FT): _____
TIME END PURGE: <u>1208</u>	
TIME SAMPLED: <u>1209-1213</u>	
COMMENTS: _____	

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>80.98</u>	-	<u>65.54</u>	=	<u>15.44</u>	X	0.16	0.64	1.44	=	<u>2.5</u>

TIME	<u>1152</u>	<u>1156</u>	<u>1202</u>	<u>1208</u>	<u>(AFTER) 1213</u>		
VOLUME PURGED (GAL)	<u>2-</u>	<u>4-</u>	<u>6-</u>	<u>7.5</u>	<u>8.7</u>		
PURGE RATE (GPM)	<u>0.3</u>	<u>0.5</u>	<u>0.3</u>	<u>0.4</u>	<u>-</u>		
TEMPERATURE (°C)	<u>24.0</u>	<u>24.2</u>	<u>24.2</u>	<u>24.2</u>	<u>23.7</u>		
pH	<u>6.56</u>	<u>6.56</u>	<u>6.55</u>	<u>6.57</u>	<u>6.57</u>		
SPECIFIC CONDUCTIVITY ( <u>micromhos</u> (uncorrected) <u>cm</u> )	<u>2390</u>	<u>2320</u>	<u>2280</u>	<u>2250</u>	<u>2260</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eh(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
TURBIDITY/COLOR	<u>119-</u>	<u>77</u>	<u>42</u>	<u>35</u>	<u>24</u>		
ODOR	<u>None</u>	<u>None</u>	<u>?</u>	<u>POSSIBLE FAINT CHLORINE ODOR</u>	<u>CHLORINE ODOR</u>		
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>0.8</u>	<u>1.6</u>	<u>2.4</u>	<u>3.0</u>	<u>3.5</u>		
DEWATERED?	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>		

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: BOING C-6WELL NUMBER: TMW-02PROJECT NUMBER: 984006.00PERSONNEL: MB + MG

## SAMPLE DATA:

TIME SAMPLED: 1209-1213

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RF2

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW02 W0715 98	3	VOA	REL	No	3x40ml	Low	CL	✓	8260 TP#C	
u	3	16 litre Amber	—	No	3x1L	Low	CL	✓	TP#D 8080 8270	
u	1	500ml PLAS	HNO <sub>3</sub>	YES	500ml	Low	CL	✓	WSTAC	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 8.7

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: LOAF SITE IN DRUM

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?:

☒ YESNO TEMP WORK -  
PER PLANINSIDE OF WELL HEAD AND OUTER CASING DRY?: ☒ YES NOWELL CASING OK?: ☒ YES NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clear / Warm → Working inside Bldg 1TEMPERATURE (SPECIFY °C OR °F): 90°F → 70° inside BldgPROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NONE

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7-31-98

Kennedy/Jenks Consultants

PROJECT NAME: Boring C-6 WELL NUMBER: TMW-3

PROJECT NUMBER: 98400600 PERSONNEL: M. Balderman / J. Knight

STATIC WATER LEVEL (FT): 66.07 MEASURING POINT DESCRIPTION: N casing rim

WATER LEVEL MEASUREMENT METHOD: Selinst Sounder PURGE METHOD: Reflow II Pump (2")

TIME START PURGE: 0834 PURGE DEPTH (FT) 70'

TIME END PURGE: 0856

TIME SAMPLED: 0900

COMMENTS: \_\_\_\_\_

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	83.30	-	66.07	=	16.63	X	0.16	0.64	1.44	=	2.66 x 3 = 7.98

TIME	0840	0846	0852	0856	0917		
VOLUME PURGED (GAL)	2	4	6	8	11		
PURGE RATE (GPM)	.33	.33	.33	.50	.33		
TEMPERATURE (°C)	23.3	23.5	23.6	23.6	24.1		
pH	7.03	7.18	7.20	7.24	7.30		
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	1760	1590	1520	1470	1420		
DISSOLVED OXYGEN (mg/L)							
eH(MV)Pt-AgCl ref.							
TURBIDITY/COLOR		90	45.7	41	26		
ODOR	none	none	none	none	none		
DEPTH OF PURGE INTAKE (FT)	70	70	70	70	70		
DEPTH TO WATER DURING PURGE (FT)							
NUMBER OF CASING VOLUMES REMOVED	< 1	< 2	< 3	3	< 4		
DEWATERED?	No	No	No	No	No		

## Groundwater Purge and Sample Form

Date: 7-31-98

Kennedy/Jenks Consultants

PROJECT NAME: Boeing C-6 WELL NUMBER: TMW-3  
PROJECT NUMBER: 984006.00 PERSONNEL: M. Balderman / J Knight

## SAMPLE DATA:

TIME SAMPLED: 0900 COMMENTS: Stopped at 0905 during collection  
DEPTH SAMPLED (FT): 70' to allow recharge. Resumed collection  
SAMPLING EQUIPMENT: Grundfos at 0912 after pumping 30 seconds

SAMPLE NO.	NO. OF CONTAINERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
<del>TMW</del> TMW-3-W 073198	7	3 x 40ml 3 x 1L 1 x 100ml	HCl None HNO <sub>3</sub>	No No yes	40 x 3 L 1 x 1 L 100 x 1 ml	26	clr	yes	VOL, TPL, S.VOL, Pest, Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 8 COMMENTS: (11 gallons total) 3 gallons  
DISPOSAL METHOD: removed during sample collection  
DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)? (YES) NOINSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NOWELL CASING OK?: (YES) NOCOMMENTS: Temporary well - No grant or surface completion

## GENERAL:

WEATHER CONDITIONS: Clear, WarmTEMPERATURE (SPECIFY °C OR (°F)): 85°PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: R.P.  
Job File: \_\_\_\_\_  
Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BOON C-6WELL NUMBER: Tmw-04PROJECT NUMBER: 984006-00PERSONNEL: MB P MLSTATIC WATER LEVEL (FT): 66.31MEASURING POINT DESCRIPTION: TOCWATER LEVEL MEASUREMENT METHOD: SOUNDPURGE METHOD: RF2TIME START PURGE: 1252PURGE DEPTH (FT) 75TIME END PURGE: 1325TIME SAMPLED: 1326-1330

COMMENTS: \_\_\_\_\_

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>80.05</u>	-	<u>66.31</u>	=	<u>13.74</u>	X	0.16	0.64	1.44	=	<u>2.2</u>

TIME	<u>1258</u>	<u>1313</u>	<u>1319</u>	<u>1322</u>	<u>AFTER 1332</u>		
VOLUME PURGED (GAL)	<u>1.9</u>	<u>5</u>	<u>8</u>	<u>9.5</u>	<u>11</u>		
PURGE RATE (GPM)	<u>0.3</u>	<u>0.3</u>	<u>0.5</u>	<u>0.5</u>	<u>-</u>		
TEMPERATURE (°C)	<u>25.3</u>	<u>27.1</u>	<u>24.8</u>	<u>24.8</u>	<u>25.8</u>		
pH	<u>6.89</u>	<u>6.89</u>	<u>6.86</u>	<u>6.91</u>	<u>6.87</u>		
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	<u>1347</u>	<u>1396</u>	<u>1365</u>	<u>1352</u>	<u>1372</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eH(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>4.6</u>		
TURBIDITY/COLOR	<u>54</u>	<u>29</u>	<u>19</u>	<u>19</u>	<u>16</u>		
ODOR	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>0.9</u>	<u>2.3</u>	<u>3.6</u>	<u>4.3</u>	<u>5.0</u>		
DEWATERED?	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>		

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: Boone C-6WELL NUMBER: TMW-04PROJECT NUMBER: 984006-00PERSONNEL: MB, MG

## SAMPLE DATA:

TIME SAMPLED: 1326-1330

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RF2

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW04 W0714 98	3	WA	HCL	No	3x40-1	16-19	CL	✓	8260 TPH-G	
"	3	1 liter Amber	—	No	3x1 liter	16-19	CL	✓	TPH-D 8080 8270	
"	1	500ml PLAC	HNO3	YES	500ml	16-19	CL	✓	Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 11

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: Left in drum @ site

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: ☒ YES NO per temp wellINSIDE OF WELL HEAD AND OUTER CASING DRY?: ☒ YES NOWELL CASING OK?: ☒ YES NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clear & WarmTEMPERATURE (SPECIFY °C OR °F): 80° F

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? \_\_\_\_\_

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BOEING C-6 WELL NUMBER: TWJ 05

PROJECT NUMBER: 98400G.00 PERSONNEL: BANDERMAN + GODINHO

STATIC WATER LEVEL (FT): 66.00 MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: SOLINST PURGE METHOD: RF 2

TIME START PURGE: 0945 PURGE DEPTH (FT) 75

TIME END PURGE: 1015

TIME SAMPLED: 1016-1021

COMMENTS: SAMPLED AFTER PURGING 5 WELL VOLUMES

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	81.35	-	66.00	=	15.35	X	0.16	0.64	1.44	=	2.5

TIME	0950	0953	0955	1002	1005	1009	1015
VOLUME PURGED (GAL)	2.0	4.5	7.5	8.5	9.0	10.0	12.0
PURGE RATE (GPM)	0.4	0.8	0.6	0.2	0.2	0.3	0.3
TEMPERATURE (°C)	23.2	23.4	22.8	24.4	24.7	25.5	24.2
pH	6.86	7.02	7.03	7.08	7.12	7.11	7.13
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) <small>cm</small>	715	648	635	626	623	643	628
DISSOLVED OXYGEN (mg/L)	—	—	—	—	—	—	—
eH(MV)Pt-AgCl ref.	—	—	—	—	—	—	—
TURBIDITY/COLOR	70	25	26	68	76	35	9.1
ODOR	—	NOISE	—	—	—	—	→
DEPTH OF PURGE INTAKE (FT)	75	75	75	75	75	75	75
DEPTH TO WATER DURING PURGE (FT)	NM	—	—	—	—	—	→
NUMBER OF CASING VOLUMES REMOVED	0.8	1.8	3.0	3.4	3.6	4.0	4.8
DEWATERED?	No	—	—	—	—	→	No

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: Boeing C-6WELL NUMBER: TMW-05PROJECT NUMBER: 984006.00PERSONNEL: BALDERMAN & GODINOS

## SAMPLE DATA:

TIME SAMPLED: 1016-1021

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 70SAMPLING EQUIPMENT: RP2

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW-05 071493	3	VOA	ACL	No	3x40 <sub>ml</sub>	9	Clear	✓	E260 +TPH-G	
"	3	1000ml Amber	-	No	3x1L	9	Clear	✓	TPH-D E260 E270	
"	1	500 ml P	HNO <sub>3</sub>	YES	300ml	9	Clear	✓	Met-A	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 13.8COMMENTS: -DISPOSAL METHOD: Left in drum @ siteDRUM DESIGNATION(S)/VOLUME PER (GAL): Combined w/ TMW-061-04

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO Per Temp WellINSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NOWELL CASING OK?: (YES) NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clear & WarmTEMPERATURE (SPECIFY °C OR °F): 80°FPROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? -

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BOONING C-6WELL NUMBER: TWJ-06PROJECT NUMBER: 984006.00PERSONNEL: MBIMGSTATIC WATER LEVEL (FT): 65.94MEASURING POINT DESCRIPTION: TOCWATER LEVEL MEASUREMENT METHOD: SOUNDPURGE METHOD: RFRTIME START PURGE: 1128PURGE DEPTH (FT) 75TIME END PURGE: 1150TIME SAMPLED: 1150-1155

COMMENTS: \_\_\_\_\_

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>80.75</u>	-	<u>65.94</u>	=	<u>14.81</u>	X	0.16	0.64	1.44	=	<u>2.4</u>

TIME	<u>1133</u>	<u>1140</u>	<u>1145</u>	<u>1149</u>	<u>(APPROX SAMPLES)</u> <u>1155</u>		
VOLUME PURGED (GAL)	<u>2.0</u>	<u>4.5</u>	<u>6.5</u>	<u>8.1</u>	<u>9.9</u>		
PURGE RATE (GPM)	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>-</u>		
TEMPERATURE (°C)	<u>24.2</u>	<u>24.6</u>	<u>24.6</u>	<u>24.7</u>	<u>23.7</u>		
pH	<u>6.82</u>	<u>6.85</u>	<u>6.88</u>	<u>6.89</u>	<u>6.92</u>		
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	<u>1269</u>	<u>1285</u>	<u>1299</u>	<u>1304</u>	<u>1297</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eH(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
TURBIDITY/COLOR	<u>175</u>	<u>34</u>	<u>13</u>	<u>8.5</u>	<u>9.5</u>		
ODOR	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>		
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>N/m</u>	<u>N/m</u>	<u>N/m</u>	<u>N/m</u>	<u>N/m</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>0.8</u>	<u>1.8</u>	<u>2.7</u>	<u>3.4</u>	<u>4.1</u>		
DEWATERED?	<u>No</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BOONING C-6WELL NUMBER: TMW-06PROJECT NUMBER: 984006-00PERSONNEL: MB & MG

## SAMPLE DATA:

TIME SAMPLED: 1150-1155

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RF2

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW06 71498	3	VOA	HCl	No	3x40ml	9	CL	✓	8280 TPH-G	8260
"	3	1-Litre Anbu	—	No	3x1Ltr	9	CL	✓	TPH-D 8080 8270	
"	1	500ml PLK	HNO3	YES	500ml	9	CL	✓	MARKS	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 10 GAL

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: LEFT @ SITE IN DRUMDRUM DESIGNATION(S)/VOLUME PER (GAL): W/ TMW-06 1-04

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO PER TEMP WELLINSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NOWELL CASING OK?: (YES) NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clear & warmTEMPERATURE (SPECIFY °C OR °F): 80° F

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? \_\_\_\_\_

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BOEING C-6 WELL NUMBER: TMW-07  
 PROJECT NUMBER: 984006-00 PERSONNEL: MB + ML

STATIC WATER LEVEL (FT): 66.26 MEASURING POINT DESCRIPTION: TOC  
 WATER LEVEL MEASUREMENT METHOD: SOUND PURGE METHOD: RP2  
 TIME START PURGE: 1505 PURGE DEPTH (FT) 75  
 TIME END PURGE: 1533  
 TIME SAMPLED: 1536-1541

COMMENTS: START SAMPLING @ 9.5 GAL MIN

TOOK RINSTATE BLANK BEFORE SAMPLING/PURGING TMW-07 -  
USED RP2 PUMPING DI WATER FROM ORIG CONTAINER, TAPED TUBING

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>83.67</u>	-	<u>66.26</u>	=	<u>17.41</u>	X	<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	=	<u>2.8</u>

TIME	<u>1515</u>	<u>1520</u>	<u>1524</u>	<u>1531</u>	<u>(AFTER) 1541</u>		
VOLUME PURGED (GAL)	<u>3-</u>	<u>4.6</u>	<u>6.0</u>	<u>8.0</u>	<u>10.5</u>		
PURGE RATE (GPM)	<u>0.3</u>	<u>0.5</u>	<u>2.5 0.4</u>	<u>0.3</u>	<u>-</u>		
TEMPERATURE (°C)	<u>24.6</u>	<u>25.2</u>	<u>24.9</u>	<u>25.1</u>	<u>25.0</u>		
pH	<u>6.96</u>	<u>6.98</u>	<u>7.02</u>	<u>7.02</u>	<u>6.98</u>		
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) <u>cm</u>	<u>1349</u>	<u>1352</u>	<u>1333</u>	<u>1338</u>	<u>1331</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eH(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
TURBIDITY/COLOR	<u>163</u>	<u>87</u>	<u>54</u>	<u>42.4</u>	<u>32.8</u>		
ODOR	<u>-</u>	<u>-</u>	<u>-</u>				
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>1.1</u>	<u>1.6</u>	<u>2.1</u>	<u>2.9</u>	<u>3.8</u>		
DEWATERED?	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>		

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: Boeing C-6WELL NUMBER: TMW-017PROJECT NUMBER: 984006.00PERSONNEL: MB + MG

## SAMPLE DATA:

TIME SAMPLED: 1536-1541

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RP2

SAMPLE NO.	NO. OF CONTAINERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW017 W0714 98	3	VOA	HCL	No	3x40ml	33-40	CL	✓	8260 TPA-6	
"	3	1 liter Anb	-	No	3x16Ltr	33-40	CL	✓	TPA-D 8080 8250	
"	1	500ml Plas	HNO3	YES	500ml	33-40	CL	✓	Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 10-5

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: Left in diam @ site

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?:

☒ YES

NO

per temp wellINSIDE OF WELL HEAD AND OUTER CASING DRY?: ☒ YES NOWELL CASING OK?: ☒ YES NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clear & WarmTEMPERATURE (SPECIFY °C OR °F): 80

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? \_\_\_\_\_

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: Boston C-6 WELL NUMBER: TWJ-08

PROJECT NUMBER: 984006-00 PERSONNEL: MB & ML

STATIC WATER LEVEL (FT): 66.27 MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: SOUNDST PURGE METHOD: RP-2

TIME START PURGE: 0749 PURGE DEPTH (FT) 75 FT

TIME END PURGE: 0818

TIME SAMPLED: 0819-0827

COMMENTS: Took Duplicate Sample ~ TWJ-11' with  
FALSE TIME 0730-0735

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>81.25</u>	-	<u>66.27</u>	=	<u>14.98</u>	X	<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	=	<u>2.4</u>

TIME	<u>0757</u>	<u>0804</u>	<u>0809</u>	<u>0814</u>	<u>AFTER 0828</u>		
VOLUME PURGED (GAL)	<u>2</u>	<u>4</u>	<u>5.5</u>	<u>7.5</u>	<u>9.8</u>		
PURGE RATE (GPM)	<u><del>24.9</del> 0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.4</u>	<u>-</u>		
TEMPERATURE (°C)	<u>24.9</u>	<u>24.7</u>	<u>24.7</u>	<u>24.9</u>	<u>25.2</u>		
pH	<u>6.46</u>	<u>6.50</u>	<u>6.58</u>	<u>6.59</u>	<u>6.62</u>	<u>6.62</u>	
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	<u>1246</u>	<u>1265</u>	<u>1263</u>	<u>1273</u>	<u>1285</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eH(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
TURBIDITY/COLOR	<u>122</u>	<u>57</u>	<u>43</u>	<u>26</u>	<u>17.8</u>		
ODOR	<u>None</u>	<u>None</u>	<u>None</u>	<u>None</u>	<u>None</u>		
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>0.8</u>	<u>1.7</u>	<u>2.3</u>	<u>3.1</u>	<u>4.1</u>		
DEWATERED?	<u>No</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		

## Groundwater Purge and Sample Form

Date: 7/15/98

Kennedy/Jenks Consultants

PROJECT NAME: BOBNA C-6WELL NUMBER: TMW-08PROJECT NUMBER: 984006.00PERSONNEL: MB 1 MG

## SAMPLE DATA:

TIME SAMPLED: 0819-0827

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RF 2

SAMPLE NO.	NO. OF CONTAINERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TMW08 W0715 98	3	Vol	HCL	No	3x40ml	18-25	CL	✓	8260 TPH-G	
"	3	1 Liter Anker	—	No	3x1 Liter	18-25	CL	✓	TPH-D 8080 8270	
"	1	500ml Diox	HNO3	Yes	500ml	18-25	CL	✓	Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 9.8

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: Left in drum at site

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: YES NO per temp wellINSIDE OF WELL HEAD AND OUTER CASING DRY?: YES NOWELL CASING OK?: YES NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: Clean & WarmTEMPERATURE (SPECIFY °C OR °F): 80°F

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? \_\_\_\_\_

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BORING C-6WELL NUMBER: TNW-09PROJECT NUMBER: 984006.00PERSONNEL: Balderson & GodwinSTATIC WATER LEVEL (FT): 66.56MEASURING POINT DESCRIPTION: TOCWATER LEVEL MEASUREMENT METHOD: SOLINSTPURGE METHOD: RFZTIME START PURGE: 1630PURGE DEPTH (FT) 75TIME END PURGE: 1718TIME SAMPLED: 1719-1723COMMENTS: PUMPING ADD'L 30 GAL TO COMPLETE VOLUME  
SPECIFIED FOR DEVELOPMENT

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			=	CASING VOLUME (GAL)
							2	4	6		
	<u>77.63</u>	-	<u>66.56</u>	=	<u>13.07</u>	X	<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	=	<u>2.1</u>

TIME	<u>1705</u>	<u>1709</u>	<u>1713</u>	<u>1716</u>	<u>AFTER 1722</u>		
VOLUME PURGED (GAL)	<u>30.5</u>	<u>33.5</u>	<u>35.6</u>	<u>36.5</u>	<u>39</u>		
PURGE RATE (GPM)	<u>0.9</u>	<u>0.8</u>	<u>0.5</u>	<u>0.3</u>	<u>-</u>		
TEMPERATURE (°C)	<u>23.9</u>	<u>24.5</u>	<u>24.5</u>	<u>24.5</u>	<u>24.5</u>		
pH	<u>6.86</u>	<u>7.14</u>	<u>7.09</u>	<u>7.09</u>	<u>7.10</u>		
SPECIFIC CONDUCTIVITY ( $\frac{\text{micromhos}}{\text{cm}}$ )	<u>909</u>	<u>917</u>	<u>918</u>	<u>918</u>	<u>913</u>		
DISSOLVED OXYGEN (mg/L)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
eH(MV)Pt-AgCl ref.	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
TURBIDITY/COLOR	<u>35</u>	<u>31</u>	<u>18</u>	<u>15</u>	<u>13.7</u>		
ODOR	<u>None</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>		
DEPTH OF PURGE INTAKE (FT)	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>		
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>		
NUMBER OF CASING VOLUMES REMOVED	<u>14.5</u>	<u>16.0</u>	<u>17.0</u>	<u>17.4</u>	<u>18.6</u>		
DEWATERED?	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>		

## Groundwater Purge and Sample Form

Date: 7/14/98

Kennedy/Jenks Consultants

PROJECT NAME: BANK C-6WELL NUMBER: TWJ-09PROJECT NUMBER: 984006.00PERSONNEL: MBI MB

## SAMPLE DATA:

TIME SAMPLED: 1719-1723

COMMENTS: \_\_\_\_\_

DEPTH SAMPLED (FT): 75SAMPLING EQUIPMENT: RP2

SAMPLE NO.	NO. OF CONTAINERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
TWJ09 W0714 GB	3	VOA	HCl	No	3x421	14	CL	✓	B260 TPH-6	
"	3	1 liter Amber	—	No	3x1Ltr	14	CL	✓	TPH-D 8080 8270	
"	1	500ml Plas	HNO3	Yes	500 ml	14	CL	✓	Metals	

## PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 39

COMMENTS: \_\_\_\_\_

DISPOSAL METHOD: Left in drum at site

DRUM DESIGNATION(S)/VOLUME PER (GAL): \_\_\_\_\_

## WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?:

☒ YES NO per temp well

INSIDE OF WELL HEAD AND OUTER CASING DRY?:

☒ YES NO

WELL CASING OK?:

☒ YES NO

COMMENTS: \_\_\_\_\_

## GENERAL:

WEATHER CONDITIONS: WORKING IN DOOR - INSIDE BLDG 1

TEMPERATURE (SPECIFY °C OR °F): \_\_\_\_\_

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? \_\_\_\_\_

cc: Project Manager: \_\_\_\_\_

Job File: \_\_\_\_\_

Other: \_\_\_\_\_

## **APPENDIX G**

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### **LABORATORY REPORTS FROM GROUNDWATER ANALYSES**



**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**LABORATORY REPORT FORM**

Laboratory Name: ORANGE COAST ANALYTICAL, INC.

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print) : Mark Noorani

Client: Kennedy Jenks Consultants

Project No.: 984006.00

Project Name: Boeing C-6

Laboratory Reference: KJC 10360

Analytical Method: 8260, Metals, 8015g, 8015m diesel, 8080 Pesticides, 8270

Date Sampled: 07/31/98

Date Received: 07/31/98

Date Reported: 08/06/98

Sample Matrix: Soil & Water

Chain of Custody Received: Yes

Laboratory Director's Signature: 

**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-3-W073198  
**Laboratory Sample Number:** 98070193  
**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 07/31/98  
**Reported:** 08/06/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	50	N.D.
Bromodichloromethane	75-27-4	50	N.D.
Bromoform	75-25-2	50	N.D.
Bromomethane	74-83-9	100	N.D.
Carbon Disulfide	75-15-0	50	N.D.
Carbon tetrachloride	56-23-5	50	N.D.
Chlorobenzene	108-90-7	50	N.D.
Chlorodibromomethane	124-48-1	50	N.D.
Chloroethane	75-00-3	50	N.D.
2-Chloroethyl vinyl ether	110-75-8	50	N.D.
Chloroform	67-66-3	50	N.D.
Chloromethane	74-87-3	50	N.D.
1,1-Dichloroethane	75-34-3	50	N.D.
1,2-Dichloroethane	107-06-2	50	N.D.
1,1-Dichloroethene	75-35-4	50	200
Trans 1,2-Dichloroethene	156-60-5	50	N.D.
1,2-Dichloropropane	78-87-5	50	N.D.
cis-1,3-Dichloropropene	10061-01-5	50	N.D.
trans-1,3-Dichloropropene	10061-02-6	50	N.D.
Ethylbenzene	100-41-4	50	N.D.
Methylene chloride	75-09-2	250	N.D.
Styrene	100-42-5	50	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	50	N.D.
Tetrachloroethene	127-18-4	50	N.D.
Toluene	108-88-3	50	N.D.
1,1,1-Trichloroethane	71-55-6	50	N.D.
1,1,2-Trichloroethane	79-00-5	50	N.D.
Trichloroethene	79-01-6	50	8,100
Trichlorofluoromethane	75-69-4	50	N.D.
Vinyl acetate	108-05-4	100	N.D.
Vinyl chloride	75-01-4	50	N.D.
Total Xylenes	1330-20-7	100	N.D.
Dichlorodifluoromethane	75-71-8	50	N.D.
cis-1,2-Dichloroethene	156-59-2	50	N.D.
2,2-Dichloropropane	594-20-7	50	N.D.
Bromochloromethane	74-97-5	50	N.D.
1,1-Dichloropropene	563-58-6	50	N.D.
Dibromomethane	74-95-3	50	N.D.
1,2-Dibromoethane	106-93-4	50	N.D.

**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

**Sample Description:** Water, TMW-3-W073198

**Laboratory Sample Number:** 98070193

**Laboratory Reference #:** KJC 10360

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	0.5	N.D.
Isopropylbenzene	98-82-8	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
1,2,3-Trichloropropane	96-18-4	0.5	N.D.
Bromobenzene	108-86-1	0.5	N.D.
n-Propylbenzene	103-65-1	0.5	N.D.
2-Chlorotoluene	95-49-8	0.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	0.5	N.D.
4-Chlorotoluene	106-43-4	0.5	N.D.
tert-Butylbenzene	98-06-6	0.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	0.5	N.D.
sec-Butylbenzene	135-98-8	0.5	N.D.
4-Isopropyltoluene	99-87-6	0.5	N.D.
1,3-Dichlorobenzene	541-73-1	0.5	N.D.
1,4-Dichlorobenzene	106-46-7	0.5	N.D.
n-Butylbenzene	104-51-8	0.5	N.D.
1,2-Dichlorobenzene	95-50-1	0.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	1.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	0.5	N.D.
Hexachlorobutadiene	87-68-3	0.5	N.D.
Naphthalene	91-20-3	0.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	90
Toluene-d8	98
4-Bromofluorobenzene	98

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water , Trip Blank  
**Laboratory Sample Number:** 98070194  
**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 07/31/98  
**Reported:** 08/06/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	0.5	N.D.
Bromodichloromethane	75-27-4	0.5	N.D.
Bromoform	75-25-2	0.5	N.D.
Bromomethane	74-83-9	1.0	N.D.
Carbon Disulfide	75-15-0	0.5	N.D.
Carbon tetrachloride	56-23-5	0.5	N.D.
Chlorobenzene	108-90-7	0.5	N.D.
Chlorodibromomethane	124-48-1	0.5	N.D.
Chloroethane	75-00-3	0.5	N.D.
2-Chloroethyl vinyl ether	110-75-8	0.5	N.D.
Chloroform	67-66-3	0.5	N.D.
Chloromethane	74-87-3	0.5	N.D.
1,1-Dichloroethane	75-34-3	0.5	N.D.
1,2-Dichloroethane	107-06-2	0.5	N.D.
1,1-Dichloroethene	75-35-4	0.5	N.D.
Trans 1,2-Dichloroethene	156-60-5	0.5	N.D.
1,2-Dichloropropane	78-87-5	0.5	N.D.
cis-1,3-Dichloropropene	10061-01-5	0.5	N.D.
trans-1,3-Dichloropropene	10061-02-6	0.5	N.D.
Ethylbenzene	100-41-4	0.5	N.D.
Methylene chloride	75-09-2	2.5	N.D.
Styrene	100-42-5	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
Tetrachloroethene	127-18-4	0.5	N.D.
Toluene	108-88-3	0.5	N.D.
1,1,1-Trichloroethane	71-55-6	0.5	N.D.
1,1,2-Trichloroethane	79-00-5	0.5	N.D.
Trichloroethene	79-01-6	0.5	N.D.
Trichlorofluoromethane	75-69-4	0.5	N.D.
Vinyl acetate	108-05-4	1.0	N.D.
Vinyl chloride	75-01-4	0.5	N.D.
Total Xylenes	1330-20-7	1.0	N.D.
Dichlorodifluoromethane	75-71-8	0.5	N.D.
cis-1-2,-Dichloroethene	156-59-2	0.5	N.D.
2,2-Dichloropropane	594-20-7	0.5	N.D.
Bromochloromethane	74-97-5	0.5	N.D.
1,1-Dichloropropene	563-58-6	0.5	N.D.
Dibromomethane	74-95-3	0.5	N.D.
1,2-Dibromoethane	106-93-4	0.5	N.D.

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

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**Sample Description:** Water , Trip Blank**Laboratory Sample Number:** 98070194**Laboratory Reference #:** KJC 10360

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	0.5	N.D.
Isopropylbenzene	98-82-8	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
1,2,3-Trichloropropane	96-18-4	0.5	N.D.
Bromobenzene	108-86-1	0.5	N.D.
n-Propylbenzene	103-65-1	0.5	N.D.
2-Chlorotoluene	95-49-8	0.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	0.5	N.D.
4-Chlorotoluene	106-43-4	0.5	N.D.
tert-Butylbenzene	98-06-6	0.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	0.5	N.D.
sec-Butylbenzene	135-98-8	0.5	N.D.
4-Isopropyltoluene	99-87-6	0.5	N.D.
1,3-Dichlorobenzene	541-73-1	0.5	N.D.
1,4-Dichlorobenzene	106-46-7	0.5	N.D.
n-Butylbenzene	104-51-8	0.5	N.D.
1,2-Dichlorobenzene	95-50-1	0.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	1.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	0.5	N.D.
Hexachlorobutadiene	87-68-3	0.5	N.D.
Naphthalene	91-20-3	0.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	0.5	N.D.

---

Analytes reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	91
Toluene-d8	99
4-Bromofluorobenzene	98

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-3-W073198  
**Laboratory Sample Number:** 98070193  
**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 08/03/98  
**Reported:** 08/06/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)****Sample Description:** Water, TMW-3-W073198**Laboratory Sample Number:** 98070193**Laboratory Reference #:** KJC 10360**ANALYTE**

	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-3-W073198

**Laboratory Sample Number:** 98070193

**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 08/03,06/98  
**Reported:** 08/06/98

**CCR - METALS**

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Result mg/l</b>
Antimony	6010	0.50	N.D.
Arsenic	6010	0.10	N.D.
Barium	6010	0.01	0.053
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium (VI)	7196	0.01	N.D.
Chromium Total	6010	0.01	0.016
Cobalt	6010	0.10	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.10	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.10	N.D.
Nickel	6010	0.10	N.D.
Selenium	6010	0.10	N.D.
Silver	6010	0.10	N.D.
Thallium	6010	0.50	N.D.
Vanadium	6010	0.10	N.D.
Zinc	6010	0.01	0.093

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Analytes reported as N.D. were not present above the stated limit of detection.

**ORANGE COAST ANALYTICAL, INC.**

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**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water  
**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 08/06/98  
**Reported:** 08/06/98

**DIESEL ANALYSIS (EPA 8015M)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Extractable Hydrocarbons (mg/l)</b>
98070193	TMW-3-W073198	N.D.

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Detection Limit: 0.5

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Analyte reported as N.D. was not present above the stated limit of detection.

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water

**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98  
**Received:** 07/31/98  
**Analyzed:** 08/06/98  
**Reported:** 08/06/98

**VOLATILE FUEL HYDROCARBONS (EPA 8015m)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Volatile Fuel Hydrocarbons (mg/l) (ppm)</b>
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98070193	TMW-3-W073198	3.5
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Detection Limit:	0.05
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Volatile Fuel Hydrocarbons are quantitated against a gasoline standard.

Hydrocarbons detected by this method range from C6 to C14.

Analytes reported as N.D. were not present above the stated limit of detection.

**ORANGE COAST ANALYTICAL, INC.**

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**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-3-W073198

**Laboratory Sample Number:** 98070193

**Laboratory Reference #:** KJC 10360

**Sampled:** 07/31/98

**Received:** 07/31/98

**Analyzed:** 08/03/98

**Reported:** 08/06/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.5	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**ORANGE COAST ANALYTICAL, INC.**

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**QC DATA REPORT**

Analysis : Volatile Organics by GC/MS (EPA 8260)

Date of Analysis : 07/31/98

Laboratory Sample No : 98070194

Laboratory Reference No : KJC 10360

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
Benzene	0.0	20	17	16	85	80	6
1,1-Dichloroethene	0.0	20	17	16	85	80	6
Trichloroethene	0.0	20	17	16	85	80	6
Toluene	0.0	20	18	16	90	80	12
Chlorobenzene	0.0	20	17	16	85	80	6

Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$

PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$

RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

**ORANGE COAST ANALYTICAL, INC.**

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**QC DATA REPORT**

Analysis : Semi-Volatile Organics by GC/MS (EPA 8270)

Date of Analysis : 08/03/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10360

Analyte	R1 (ng)	SP (ng)	MS (ng)	MSD (ng)	PR1 %	PR2 %	RPD %
1,4-Dichlorobenzene	0.0	50	43	42	86	84	2
n-Nitroso-di-n-propylamine	0.0	50	44	45	88	90	2
1,2,4-Trichlorobenzene	0.0	50	45	45	90	90	0
Acenaphthene	0.0	50	38	39	76	78	3
Pyrene	0.0	50	39	40	78	80	3
Pentachlorophenol	0.0	100	76	82	76	82	8
4-Chloro-3-Methylphenol	0.0	100	63	68	63	68	8
2-Chlorophenol	0.0	100	78	82	78	82	5
Phenol	0.0	100	37	41	37	41	10

## Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**QC DATA REPORT**

Analysis : Metals

Date of Analysis : 08/03,06/98

Laboratory Sample No : 98070193, OCA100 for Hg

Laboratory Reference No : KJC 10360

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Antimony	0.0	1.0	1.14	1.18	114	118	3
Arsenic	0.0	1.0	1.07	1.07	107	107	0
Barium	0.053	0.10	0.154	0.155	101	102	1
Beryllium	0.0	0.10	0.107	0.107	107	107	0
Cadmium	0.0	0.10	0.101	0.101	101	101	0
Chromium (Total )	0.016	0.10	0.120	0.120	104	104	0
Chromium ( VI )	0.0	0.50	0.50	0.48	100	96	4
Cobalt	0.0	0.10	0.101	0.101	101	101	0
Copper	0.0	0.10	0.109	0.110	109	110	1
Lead	0.0	1.0	1.02	1.02	102	102	0
Mercury	0.00	0.020	0.018	0.019	90	95	5
Molybdenum	0.0	1.0	1.05	1.07	105	107	2
Nickel	0.0	0.50	0.505	0.505	101	101	0
Selenium	0.0	1.0	1.06	1.08	106	108	2
Silver	0.0	0.50	0.468	0.490	94	98	5
Thallium	0.0	1.0	0.966	1.00	97	100	3
Vanadium	0.0	0.50	0.528	0.531	106	106	1
Zinc	0.093	0.10	0.195	0.194	102	101	1

## Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**QC DATA REPORT**

Analysis : Extractable Fuel Hydrocarbons (EPA 8015m)

Date of Analysis : 08/06/98

Laboratory Sample No :OCA 100

Laboratory Reference No : KJC 10360

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	5.0	5.0	4.4	100	88	13

## Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$ PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$ RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**QC DATA REPORT**

Analysis : Organochlorine Pesticides (EPA 8080)

Date of Analysis : 08/03/98

Laboratory Sample No :OCA 100

Laboratory Reference No : KJC 10360

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
4,4'-DDT	0.0	1.0	0.68	0.67	68	67	1

## Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$ PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$ RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**QC DATA REPORT**

Analysis : EPA 5030 / 8015m

Date of Analysis :08/06/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10360

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	0.25	0.257	0.259	103	104	1

## Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$ PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$ RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$



# Analysis Request and Custody Record

**ORANGE COAST ANALYTICAL, INC.**  
3002 Dow, Suite 532  
Tustin, CA 92780  
(714) 832-0064, Fax (714) 832-0067

4620 E. Elwood, Suite 4  
Phoenix, AZ 85040  
(602) 736-0960 Fax (602) 736-0970

Lab Job No: \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_

REQUIRED TAT: Normal

CUSTOMER INFORMATION				PROJECT INFORMATION				ANALYSIS METHOD REQUEST		REMARKS/PRECAUTIONS	
COMPANY:	Kennedy / Jenks			PROJECT NAME:	Boeing C-6			<div>8260 8015 8250 8080 Pest Metals + Cr VI HOLD</div>			
SEND REPORT TO:	Rus Pucell			NUMBER:	984006.00						
ADDRESS:	3151 Michelson Dr. Ste. 100			LOCATION:							
Irvine, CA 92612			ADDRESS:								
PHONE: 714-261-1577 FAX: 261-2134				SAMPLED BY: M. Balderman							
SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	PRES.					
TMW-3-W073198	3	7-31-98	0900	W	40ml	HCl	✓				
TMW-3-W073198	1		0913		1L	—	✓				
TMW-3-W073198	1		0913		1L	—	✓				
TMW-3-W073198	1		0914		1L	—	✓				
TMW-3-W073198	1		0916		250ml	HNO <sub>3</sub>	✓				
R073198	3		0750		40ml	HCl				X	
R073198	1		0751		1L	—				X	
R073198	1		0752		1L	—				X	
R073198	1		0754		1L	—				X	
R073198	1		0757		250ml	HNO <sub>3</sub>				X	
Trip Blank	2			W	40ml	HCl	✓				
Total No. of Samples:							Method of Shipment:				
Relinquished By: <u>[Signature]</u>		Date/Time: 7-31-98 1245		Received By:		Date/Time:		Reporting Format: (check)			
Relinquished By:		Date/Time:		Received By:		Date/Time:		NORMAL <input type="checkbox"/> S.D. HMMD <input type="checkbox"/>			
Relinquished By:		Date/Time:		Received For Lab By: <u>[Signature]</u>		Date/Time: 7/31/98 2:45		RWQCB <input type="checkbox"/> OTHER <input type="checkbox"/>			
Relinquished By:		Date/Time:		Received For Lab By:		Date/Time:		Sample Integrity: (check) <input type="checkbox"/> on ice <input type="checkbox"/>			



**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**LABORATORY REPORT FORM**

Laboratory Name: ORANGE COAST ANALYTICAL, INC.

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print) : Mark Noorani

Client: Kennedy Jenks Consultants

Project No.: Boeing

Project Name: 984006.00

Laboratory Reference: KJC 10334

Analytical Method: 8260, Metals, 8015g, 8015m diesel, 8080 Pesticides, 8270

Date Sampled: 07/14/98

Date Received: 07/14/98

Date Reported: 07/21/98

Sample Matrix: Water

Chain of Custody Received: Yes

Laboratory Director's Signature: 

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, Trip Blank  
**Laboratory Sample Number:** 98070097  
**Laboratory Reference #:** KJC 10334

**Sampled:**  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	0.5	N.D.
Bromodichloromethane	75-27-4	0.5	N.D.
Bromoform	75-25-2	0.5	N.D.
Bromomethane	74-83-9	1.0	N.D.
Carbon Disulfide	75-15-0	0.5	N.D.
Carbon tetrachloride	56-23-5	0.5	N.D.
Chlorobenzene	108-90-7	0.5	N.D.
Chlorodibromomethane	124-48-1	0.5	N.D.
Chloroethane	75-00-3	0.5	N.D.
2-Chloroethyl vinyl ether	110-75-8	0.5	N.D.
Chloroform	67-66-3	0.5	N.D.
Chloromethane	74-87-3	0.5	N.D.
1,1-Dichloroethane	75-34-3	0.5	N.D.
1,2-Dichloroethane	107-06-2	0.5	N.D.
1,1-Dichloroethene	75-35-4	0.5	N.D.
Trans 1,2-Dichloroethene	156-60-5	0.5	N.D.
1,2-Dichloropropane	78-87-5	0.5	N.D.
cis-1,3-Dichloropropene	10061-01-5	0.5	N.D.
trans-1,3-Dichloropropene	10061-02-6	0.5	N.D.
Ethylbenzene	100-41-4	0.5	N.D.
Methylene chloride	75-09-2	2.5	N.D.
Styrene	100-42-5	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
Tetrachloroethene	127-18-4	0.5	N.D.
Toluene	108-88-3	0.5	N.D.
1,1,1-Trichloroethane	71-55-6	0.5	N.D.
1,1,2-Trichloroethane	79-00-5	0.5	N.D.
Trichloroethene	79-01-6	0.5	N.D.
Trichlorofluoromethane	75-69-4	0.5	N.D.
Vinyl acetate	108-05-4	1.0	N.D.
Vinyl chloride	75-01-4	0.5	N.D.
Total Xylenes	1330-20-7	1.0	N.D.
Dichlorodifluoromethane	75-71-8	0.5	N.D.
cis-1,2-Dichloroethene	156-59-2	0.5	N.D.
1,2-Dichloropropane	594-20-7	0.5	N.D.
Bromochloromethane	74-97-5	0.5	N.D.
1,1-Dichloropropene	563-58-6	0.5	N.D.
Dibromomethane	74-95-3	0.5	N.D.
1,2-Dibromoethane	106-93-4	0.5	N.D.

**Sample Description:** Water, Trip Blank  
**Laboratory Sample Number:** 98070097  
**Laboratory Reference #:** KJC 10334

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	0.5	N.D.
Isopropylbenzene	98-82-8	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
1,2,3-Trichloropropane	96-18-4	0.5	N.D.
Bromobenzene	108-86-1	0.5	N.D.
n-Propylbenzene	103-65-1	0.5	N.D.
2-Chlorotoluene	95-49-8	0.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	0.5	N.D.
4-Chlorotoluene	106-43-4	0.5	N.D.
tert-Butylbenzene	98-06-6	0.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	0.5	N.D.
sec-Butylbenzene	135-98-8	0.5	N.D.
4-Isopropyltoluene	99-87-6	0.5	N.D.
1,3-Dichlorobenzene	541-73-1	0.5	N.D.
1,4-Dichlorobenzene	106-46-7	0.5	N.D.
n-Butylbenzene	104-51-8	0.5	N.D.
1,2-Dichlorobenzene	95-50-1	0.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	1.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	0.5	N.D.
Hexachlorobutadiene	87-68-3	0.5	N.D.
Naphthalene	91-20-3	0.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	109
Toluene-d8	95
4-Bromofluorobenzene	98

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW05W071498  
**Laboratory Sample Number:** 98070093  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	25	N.D.
Bromodichloromethane	75-27-4	25	N.D.
Bromoform	75-25-2	25	N.D.
Bromomethane	74-83-9	50	N.D.
Carbon Disulfide	75-15-0	25	N.D.
Carbon tetrachloride	56-23-5	25	N.D.
Chlorobenzene	108-90-7	25	N.D.
Chlorodibromomethane	124-48-1	25	N.D.
Chloroethane	75-00-3	25	N.D.
?-Chloroethyl vinyl ether	110-75-8	25	N.D.
Chloroform	67-66-3	25	N.D.
Chloromethane	74-87-3	25	N.D.
1,1-Dichloroethane	75-34-3	25	N.D.
1,2-Dichloroethane	107-06-2	25	N.D.
1,1-Dichloroethene	75-35-4	25	460
Trans 1,2-Dichloroethene	156-60-5	25	N.D.
1,2-Dichloropropane	78-87-5	25	N.D.
cis-1,3-Dichloropropene	10061-01-5	25	N.D.
trans-1,3-Dichloropropene	10061-02-6	25	N.D.
Ethylbenzene	100-41-4	25	N.D.
Methylene chloride	75-09-2	125	N.D.
Styrene	100-42-5	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
Tetrachloroethene	127-18-4	25	N.D.
Toluene	108-88-3	25	N.D.
1,1,1-Trichloroethane	71-55-6	25	N.D.
1,1,2-Trichloroethane	79-00-5	25	N.D.
Trichloroethene	79-01-6	25	3,700
Trichlorofluoromethane	75-69-4	25	N.D.
Vinyl acetate	108-05-4	50	N.D.
Vinyl chloride	75-01-4	25	N.D.
Total Xylenes	1330-20-7	25	N.D.
Dichlorodifluoromethane	75-71-8	25	N.D.
cis-1,2,-Dichloroethene	156-59-2	25	N.D.
..2-Dichloropropane	594-20-7	25	N.D.
Bromochloromethane	74-97-5	25	N.D.
1,1-Dichloropropene	563-58-6	25	N.D.
Dibromomethane	74-95-3	25	N.D.
1,2-Dibromoethane	106-93-4	25	N.D.

**Sample Description:** Water, TMW05W071498  
**Laboratory Sample Number:** 98070093  
**Laboratory Reference #:** KJC 10334

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
1,3-Dichloropropane	142-28-9	25	N.D.
Isopropylbenzene	98-82-8	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
1,2,3-Trichloropropane	96-18-4	25	N.D.
Bromobenzene	108-86-1	25	N.D.
n-Propylbenzene	103-65-1	25	N.D.
2-Chlorotoluene	95-49-8	25	N.D.
1,3,5-Trimethylbenzene	108-67-8	25	N.D.
4-Chlorotoluene	106-43-4	25	N.D.
tert-Butylbenzene	98-06-6	25	N.D.
1,2,4-Trimethylbenzene	95-63-6	25	N.D.
sec-Butylbenzene	135-98-8	25	N.D.
4-Isopropyltoluene	99-87-6	25	N.D.
1,3-Dichlorobenzene	541-73-1	25	N.D.
1,4-Dichlorobenzene	106-46-7	25	N.D.
n-Butylbenzene	104-51-8	25	N.D.
1,2-Dichlorobenzene	95-50-1	25	N.D.
1-2-Dibromo-3-CPA	96-12-8	50	N.D.
1,2,4-Trichlorobenzene	120-82-1	25	N.D.
Hexachlorobutadiene	87-68-3	25	N.D.
Naphthalene	91-20-3	25	N.D.
1,2,3-Trichlorobenzene	87-61-6	25	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	88
Toluene-d8	97
4-Bromofluorobenzene	95

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW06W071498  
**Laboratory Sample Number:** 98070094  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	2.5	N.D.
Bromodichloromethane	75-27-4	2.5	N.D.
Bromoform	75-25-2	2.5	N.D.
Bromomethane	74-83-9	5.0	N.D.
Carbon Disulfide	75-15-0	2.5	N.D.
Carbon tetrachloride	56-23-5	2.5	N.D.
Chlorobenzene	108-90-7	2.5	N.D.
Chlorodibromomethane	124-48-1	2.5	N.D.
Chloroethane	75-00-3	2.5	N.D.
-Chloroethyl vinyl ether	110-75-8	2.5	N.D.
Chloroform	67-66-3	2.5	550
Chloromethane	74-87-3	2.5	N.D.
1,1-Dichloroethane	75-34-3	2.5	N.D.
1,2-Dichloroethane	107-06-2	2.5	N.D.
1,1-Dichloroethene	75-35-4	2.5	26
Trans 1,2-Dichloroethene	156-60-5	2.5	N.D.
1,2-Dichloropropane	78-87-5	2.5	N.D.
cis-1,3-Dichloropropene	10061-01-5	2.5	N.D.
trans-1,3-Dichloropropene	10061-02-6	2.5	N.D.
Ethylbenzene	100-41-4	2.5	N.D.
Methylene chloride	75-09-2	13	N.D.
Styrene	100-42-5	2.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	2.5	N.D.
Tetrachloroethene	127-18-4	2.5	N.D.
Toluene	108-88-3	2.5	N.D.
1,1,1-Trichloroethane	71-55-6	2.5	N.D.
1,1,2-Trichloroethane	79-00-5	2.5	N.D.
Trichloroethene	79-01-6	2.5	490
Trichlorofluoromethane	75-69-4	2.5	N.D.
Vinyl acetate	108-05-4	5.0	N.D.
Vinyl chloride	75-01-4	2.5	N.D.
Total Xylenes	1330-20-7	2.5	N.D.
Dichlorodifluoromethane	75-71-8	2.5	N.D.
cis-1,2-Dichloroethene	156-59-2	2.5	3.4
1,2-Dichloropropane	594-20-7	2.5	N.D.
Bromochloromethane	74-97-5	2.5	N.D.
1,1-Dichloropropene	563-58-6	2.5	N.D.
Dibromomethane	74-95-3	2.5	N.D.
1,2-Dibromoethane	106-93-4	2.5	N.D.

**Sample Description:** Water, TMW06W071498

**Laboratory Sample Number:** 98070094

**Laboratory Reference #:** KJC 10334

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	2.5	N.D.
Isopropylbenzene	98-82-8	2.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	2.5	N.D.
1,2,3-Trichloropropane	96-18-4	2.5	N.D.
Bromobenzene	108-86-1	2.5	N.D.
n-Propylbenzene	103-65-1	2.5	N.D.
2-Chlorotoluene	95-49-8	2.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	2.5	N.D.
4-Chlorotoluene	106-43-4	2.5	N.D.
tert-Butylbenzene	98-06-6	2.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	2.5	N.D.
sec-Butylbenzene	135-98-8	2.5	N.D.
4-Isopropyltoluene	99-87-6	2.5	N.D.
1,3-Dichlorobenzene	541-73-1	2.5	N.D.
1,4-Dichlorobenzene	106-46-7	2.5	N.D.
n-Butylbenzene	104-51-8	2.5	N.D.
1,2-Dichlorobenzene	95-50-1	2.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	2.5	N.D.
Hexachlorobutadiene	87-68-3	2.5	N.D.
Naphthalene	91-20-3	2.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	2.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	97
Toluene-d8	96
4-Bromofluorobenzene	99

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW04W071498  
**Laboratory Sample Number:** 98070095  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

VOLATILE ORGANICS BY GC/MS (EPA 8260)			
ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Benzene	71-43-2	25	N.D.
Bromodichloromethane	75-27-4	25	N.D.
Bromoform	75-25-2	25	N.D.
Bromomethane	74-83-9	50	N.D.
Carbon Disulfide	75-15-0	25	N.D.
Carbon tetrachloride	56-23-5	25	N.D.
Chlorobenzene	108-90-7	25	N.D.
Chlorodibromomethane	124-48-1	25	N.D.
Chloroethane	75-00-3	25	N.D.
\-Chloroethyl vinyl ether	110-75-8	25	N.D.
Chloroform	67-66-3	25	N.D.
Chloromethane	74-87-3	25	N.D.
1,1-Dichloroethane	75-34-3	25	55
1,2-Dichloroethane	107-06-2	25	49
1,1-Dichloroethene	75-35-4	25	1,500
Trans 1,2-Dichloroethene	156-60-5	25	66
1,2-Dichloropropane	78-87-5	25	N.D.
cis-1,3-Dichloropropene	10061-01-5	25	N.D.
trans-1,3-Dichloropropene	10061-02-6	25	N.D.
Ethylbenzene	100-41-4	25	N.D.
Methylene chloride	75-09-2	125	N.D.
Styrene	100-42-5	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
Tetrachloroethene	127-18-4	25	N.D.
Toluene	108-88-3	25	N.D.
1,1,1-Trichloroethane	71-55-6	25	N.D.
1,1,2-Trichloroethane	79-00-5	25	43
Trichloroethene	79-01-6	25	2,300
Trichlorofluoromethane	75-69-4	25	N.D.
Vinyl acetate	108-05-4	50	N.D.
Vinyl chloride	75-01-4	25	N.D.
Total Xylenes	1330-20-7	25	N.D.
Dichlorodifluoromethane	75-71-8	25	N.D.
cis-1-2,-Dichloroethene	156-59-2	25	110
2,2-Dichloropropane	594-20-7	25	N.D.
Bromochloromethane	74-97-5	25	N.D.
1,1-Dichloropropene	563-58-6	25	N.D.
Dibromomethane	74-95-3	25	N.D.
1,2-Dibromoethane	106-93-4	25	N.D.

Orange Coast Analytical, Inc.

**Sample Description:** Water, TMW04W071498

**Laboratory Sample Number:** 98070095

**Laboratory Reference #:** KJC 10334

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	25	N.D.
Isopropylbenzene	98-82-8	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
1,2,3-Trichloropropane	96-18-4	25	N.D.
Bromobenzene	108-86-1	25	N.D.
n-Propylbenzene	103-65-1	25	N.D.
2-Chlorotoluene	95-49-8	25	N.D.
1,3,5-Trimethylbenzene	108-67-8	25	N.D.
4-Chlorotoluene	106-43-4	25	N.D.
tert-Butylbenzene	98-06-6	25	N.D.
1,2,4-Trimethylbenzene	95-63-6	25	N.D.
sec-Butylbenzene	135-98-8	25	N.D.
4-Isopropyltoluene	99-87-6	25	N.D.
1,3-Dichlorobenzene	541-73-1	25	N.D.
1,4-Dichlorobenzene	106-46-7	25	N.D.
n-Butylbenzene	104-51-8	25	N.D.
1,2-Dichlorobenzene	95-50-1	25	N.D.
1-2-Dibromo-3-CPA	96-12-8	50	N.D.
1,2,4-Trichlorobenzene	120-82-1	25	N.D.
Hexachlorobutadiene	87-68-3	25	N.D.
Naphthalene	91-20-3	25	N.D.
1,2,3-Trichlorobenzene	87-61-6	25	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	98
Toluene-d8	98
4-Bromofluorobenzene	98

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

Client Project ID: Boeing  
Client Project #: 984006.00

Sample Description: Water, R071498  
Laboratory Sample Number: 98070096  
Laboratory Reference #: KJC 10334

Sampled: 07/14/98  
Received: 07/14/98  
Analyzed: 07/15/98  
Reported: 07/21/98

VOLATILE ORGANICS BY GC/MS (EPA 8260)			
ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Benzene	71-43-2	0.5	N.D.
Bromodichloromethane	75-27-4	0.5	N.D.
Bromoform	75-25-2	0.5	N.D.
Bromomethane	74-83-9	1.0	N.D.
Carbon Disulfide	75-15-0	0.5	N.D.
Carbon tetrachloride	56-23-5	0.5	N.D.
Chlorobenzene	108-90-7	0.5	N.D.
Chlorodibromomethane	124-48-1	0.5	N.D.
Chloroethane	75-00-3	0.5	N.D.
Chloroethyl vinyl ether	110-75-8	0.5	N.D.
Chloroform	67-66-3	0.5	N.D.
Chloromethane	74-87-3	0.5	N.D.
1,1-Dichloroethane	75-34-3	0.5	N.D.
1,2-Dichloroethane	107-06-2	0.5	N.D.
1,1-Dichloroethene	75-35-4	0.5	N.D.
Trans 1,2-Dichloroethene	156-60-5	0.5	N.D.
1,2-Dichloropropane	78-87-5	0.5	N.D.
cis-1,3-Dichloropropene	10061-01-5	0.5	N.D.
trans-1,3-Dichloropropene	10061-02-6	0.5	N.D.
Ethylbenzene	100-41-4	0.5	N.D.
Methylene chloride	75-09-2	2.5	N.D.
Styrene	100-42-5	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
Tetrachloroethene	127-18-4	0.5	N.D.
Toluene	108-88-3	0.5	N.D.
1,1,1-Trichloroethane	71-55-6	0.5	N.D.
1,1,2-Trichloroethane	79-00-5	0.5	N.D.
Trichloroethene	79-01-6	0.5	N.D.
Trichlorofluoromethane	75-69-4	0.5	N.D.
Vinyl acetate	108-05-4	1.0	N.D.
Vinyl chloride	75-01-4	0.5	N.D.
Total Xylenes	1330-20-7	1.0	N.D.
Dichlorodifluoromethane	75-71-8	0.5	N.D.
cis-1-2,-Dichloroethene	156-59-2	0.5	N.D.
2,2-Dichloropropane	594-20-7	0.5	N.D.
Bromochloromethane	74-97-5	0.5	N.D.
1,1-Dichloropropene	563-58-6	0.5	N.D.
Dibromomethane	74-95-3	0.5	N.D.
1,2-Dibromoethane	106-93-4	0.5	N.D.

**Sample Description:** Water, R071498  
**Laboratory Sample Number:** 98070096  
**Laboratory Reference #:** KJC 10334

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	0.5	N.D.
Isopropylbenzene	98-82-8	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
1,2,3-Trichloropropane	96-18-4	0.5	N.D.
Bromobenzene	108-86-1	0.5	N.D.
n-Propylbenzene	103-65-1	0.5	N.D.
2-Chlorotoluene	95-49-8	0.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	0.5	N.D.
4-Chlorotoluene	106-43-4	0.5	N.D.
tert-Butylbenzene	98-06-6	0.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	0.5	N.D.
sec-Butylbenzene	135-98-8	0.5	N.D.
p-Isopropyltoluene	99-87-6	0.5	N.D.
1,3-Dichlorobenzene	541-73-1	0.5	N.D.
1,4-Dichlorobenzene	106-46-7	0.5	N.D.
n-Butylbenzene	104-51-8	0.5	N.D.
1,2-Dichlorobenzene	95-50-1	0.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	1.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	0.5	N.D.
Hexachlorobutadiene	87-68-3	0.5	N.D.
Naphthalene	91-20-3	0.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	0.5	N.D.

Analyses reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	96
Toluene-d8	99
4-Bromofluorobenzene	97

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

Client Project ID: Boeing  
Client Project #: 984006.00

Sample Description: Water, TMW07W071498  
Laboratory Sample Number: 98070098  
Laboratory Reference #: KJC 10334

Sampled: 07/14/98  
Received: 07/14/98  
Analyzed: 07/16/98  
Reported: 07/21/98

## VOLATILE ORGANICS BY GC/MS (EPA 8260)

ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Benzene	71-43-2	13	40
Bromodichloromethane	75-27-4	13	N.D.
Bromoform	75-25-2	13	N.D.
Bromomethane	74-83-9	25	N.D.
Carbon Disulfide	75-15-0	13	N.D.
Carbon tetrachloride	56-23-5	13	N.D.
Chlorobenzene	108-90-7	13	N.D.
Chlorodibromomethane	124-48-1	13	N.D.
Chloroethane	75-00-3	13	N.D.
Chloroethyl vinyl ether	110-75-8	13	N.D.
Chloroform	67-66-3	13	26
Chloromethane	74-87-3	13	N.D.
1,1-Dichloroethane	75-34-3	13	73
1,2-Dichloroethane	107-06-2	13	60
1,1-Dichloroethene	75-35-4	13	3,000
Trans 1,2-Dichloroethene	156-60-5	13	83
1,2-Dichloropropane	78-87-5	13	N.D.
cis-1,3-Dichloropropene	10061-01-5	13	N.D.
trans-1,3-Dichloropropene	10061-02-6	13	N.D.
Ethylbenzene	100-41-4	13	N.D.
Methylene chloride	75-09-2	63	N.D.
Styrene	100-42-5	13	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	13	N.D.
Tetrachloroethene	127-18-4	13	N.D.
Toluene	108-88-3	13	N.D.
1,1,1-Trichloroethane	71-55-6	13	20
1,1,2-Trichloroethane	79-00-5	13	29
Trichloroethene	79-01-6	13	3,500
Trichlorofluoromethane	75-69-4	13	N.D.
Vinyl acetate	108-05-4	25	N.D.
Vinyl chloride	75-01-4	13	N.D.
Total Xylenes	1330-20-7	25	N.D.
Dichlorodifluoromethane	75-71-8	13	N.D.
cis-1,2,-Dichloroethene	156-59-2	13	120
1,2-Dichloropropane	594-20-7	13	N.D.
Bromochloromethane	74-97-5	13	N.D.
1,1-Dichloropropene	563-58-6	13	N.D.
Dibromomethane	74-95-3	13	N.D.
1,2-Dibromoethane	106-93-4	13	N.D.

Orange Coast Analytical, Inc.

**Sample Description:** Water, TMW07W071498  
**Laboratory Sample Number:** 98070098  
**Laboratory Reference #:** KJC 10334

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)			
ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
1,3-Dichloropropane	142-28-9	13	N.D.
Isopropylbenzene	98-82-8	13	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	13	N.D.
1,2,3-Trichloropropane	96-18-4	13	N.D.
Bromobenzene	108-86-1	13	N.D.
n-Propylbenzene	103-65-1	13	N.D.
2-Chlorotoluene	95-49-8	13	N.D.
1,3,5-Trimethylbenzene	108-67-8	13	N.D.
4-Chlorotoluene	106-43-4	13	N.D.
tert-Butylbenzene	98-06-6	13	N.D.
1,2,4-Trimethylbenzene	95-63-6	13	N.D.
o-c-Butylbenzene	135-98-8	13	N.D.
4-Isopropyltoluene	99-87-6	13	N.D.
1,3-Dichlorobenzene	541-73-1	13	N.D.
1,4-Dichlorobenzene	106-46-7	13	N.D.
n-Butylbenzene	104-51-8	13	N.D.
1,2-Dichlorobenzene	95-50-1	13	N.D.
1-2-Dibromo-3-CPA	96-12-8	25	N.D.
1,2,4-Trichlorobenzene	120-82-1	13	N.D.
Hexachlorobutadiene	87-68-3	13	N.D.
Naphthalene	91-20-3	13	N.D.
1,2,3-Trichlorobenzene	87-61-6	13	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	117
Toluene-d8	94
4-Bromofluorobenzene	100

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW09W071498  
**Laboratory Sample Number:** 98070099  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	1.0	N.D.
Bromodichloromethane	75-27-4	1.0	N.D.
Bromoform	75-25-2	1.0	N.D.
Bromomethane	74-83-9	2.0	N.D.
Carbon Disulfide	75-15-0	1.0	N.D.
Carbon tetrachloride	56-23-5	1.0	N.D.
Chlorobenzene	108-90-7	1.0	N.D.
Chlorodibromomethane	124-48-1	1.0	N.D.
Chloroethane	75-00-3	1.0	N.D.
-Chloroethyl vinyl ether	110-75-8	1.0	2.9
Chloroform	67-66-3	1.0	N.D.
Chloromethane	74-87-3	1.0	N.D.
1,1-Dichloroethane	75-34-3	1.0	N.D.
1,2-Dichloroethane	107-06-2	1.0	24
1,1-Dichloroethene	75-35-4	1.0	N.D.
Trans 1,2-Dichloroethene	156-60-5	1.0	N.D.
1,2-Dichloropropane	78-87-5	1.0	N.D.
cis-1,3-Dichloropropene	10061-01-5	1.0	N.D.
trans-1,3-Dichloropropene	10061-02-6	1.0	N.D.
Ethylbenzene	100-41-4	1.0	N.D.
Methylene chloride	75-09-2	5.0	N.D.
Styrene	100-42-5	1.0	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	1.0	2.1
Tetrachloroethene	127-18-4	1.0	N.D.
Toluene	108-88-3	1.0	N.D.
1,1,1-Trichloroethane	71-55-6	1.0	N.D.
1,1,2-Trichloroethane	79-00-5	1.0	N.D.
Trichloroethene	79-01-6	1.0	290
Trichlorofluoromethane	75-69-4	1.0	N.D.
Vinyl acetate	108-05-4	2.0	N.D.
Vinyl chloride	75-01-4	1.0	N.D.
Total Xylenes	1330-20-7	2.0	N.D.
Dichlorodifluoromethane	75-71-8	1.0	N.D.
cis-1-2,-Dichloroethene	156-59-2	1.0	N.D.
2,2-Dichloropropane	594-20-7	1.0	N.D.
Bromochloromethane	74-97-5	1.0	N.D.
1,1-Dichloropropene	563-58-6	1.0	N.D.
Dibromomethane	74-95-3	1.0	N.D.
1,2-Dibromoethane	106-93-4	1.0	N.D.

Orange Coast Analytical, Inc.

**Sample Description:** Water, TMW09W071498

**Laboratory Sample Number:** 98070099

**Laboratory Reference #:** KJC 10334

**VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	1.0	N.D.
Isopropylbenzene	98-82-8	1.0	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	1.0	N.D.
1,2,3-Trichloropropane	96-18-4	1.0	N.D.
Bromobenzene	108-86-1	1.0	N.D.
n-Propylbenzene	103-65-1	1.0	N.D.
2-Chlorotoluene	95-49-8	1.0	N.D.
1,3,5-Trimethylbenzene	108-67-8	1.0	N.D.
4-Chlorotoluene	106-43-4	1.0	N.D.
tert-Butylbenzene	98-06-6	1.0	N.D.
1,2,4-Trimethylbenzene	95-63-6	1.0	N.D.
sec-Butylbenzene	135-98-8	1.0	N.D.
4-Isopropyltoluene	99-87-6	1.0	N.D.
1,3-Dichlorobenzene	541-73-1	1.0	N.D.
1,4-Dichlorobenzene	106-46-7	1.0	N.D.
n-Butylbenzene	104-51-8	1.0	N.D.
1,2-Dichlorobenzene	95-50-1	1.0	N.D.
1-2-Dibromo-3-CPA	96-12-8	2.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	1.0	N.D.
Hexachlorobutadiene	87-68-3	1.0	N.D.
Naphthalene	91-20-3	1.0	N.D.
1,2,3-Trichlorobenzene	87-61-6	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Surrogate Recoveries %**

Dibromofluoromethane	106
Toluene-d8	96
4-Bromofluorobenzene	100

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW05W071498  
**Laboratory Sample Number:** 98070093  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
1,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

Orange Coast Analytical, Inc.

**Sample Description:** Water, TMW05W071498  
**Laboratory Sample Number:** 98070093  
**Laboratory Reference #:** KJC 10334

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)			
ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
1-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW06W071498  
**Laboratory Sample Number:** 98070094  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

Orange Coast Analytical, Inc.

**Sample Description: Water, TMW06W071498**

**Laboratory Sample Number: 98070094**

**Laboratory Reference #: KJC 10334**

**SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

Client Project ID: Boeing  
Client Project #: 984006.00

Sample Description: Water, TMW04W071498  
Laboratory Sample Number: 98070095  
Laboratory Reference #: KJC 10334

Sampled: 07/14/98  
Received: 07/14/98  
Analyzed: 07/15/98  
Reported: 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i) perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
2,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

Orange Coast Analytical, Inc.

BOE-C6-0141197

**Sample Description:** Water, TMW04W071498

**Laboratory Sample Number:** 98070095

**Laboratory Reference #:** KJC 10334

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, R071498  
**Laboratory Sample Number:** 98070096  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
2,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, R071498  
**Laboratory Sample Number:** 98070096  
**Laboratory Reference #:** KJC 10334

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)			
ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW07W071498  
**Laboratory Sample Number:** 98070098  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
1,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW07W071498

**Laboratory Sample Number:** 98070098

**Laboratory Reference #:** KJC 10334

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW09W071498  
**Laboratory Sample Number:** 98070099  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/15/98  
**Reported:** 07/21/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	61
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
2,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW09W071498

**Laboratory Sample Number:** 98070099

**Laboratory Reference #:** KJC 10334

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW05W071498

**Sampled:** 07/14/98

**Received:** 07/14/98

**Laboratory Sample Number:** 98070093

**Analyzed:** 07/15,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10334

CCR - METALS

Analyte	EPA Method	Detection Limit mg/l	Analysis Results mg/l
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.025
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	0.015
Cobalt	6010	0.1	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	N.D.

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW06W071498

**Sampled:** 07/14/98

**Received:** 07/14/98

**Laboratory Sample Number:** 98070094

**Analyzed:** 07/15,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10334

CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.094
Eryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	0.018
Cobalt	6010	0.1	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.022

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water, TMW04W071498**Sampled:** 07/14/98**Received:** 07/14/98**Laboratory Sample Number:** 98070095**Analyzed:** 07/15,17/98**Reported:** 07/21/98**Laboratory Reference #:** KJC 10334CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.075
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	0.011
Cobalt	6010	0.1	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.013

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water, R071498**Sampled:** 07/14/98**Received:** 07/14/98**Laboratory Sample Number:** 98070096**Analyzed:** 07/15,17/98**Reported:** 07/21/98**Laboratory Reference #:** KJC 10334**CCR - METALS**

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	N.D.
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	N.D.
Cobalt	6010	0.1	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	N.D.

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water, TMW07W071498**Sampled:** 07/14/98**Received:** 07/14/98**Laboratory Sample Number:** 98070098**Analyzed:** 07/15,17/98**Reported:** 07/21/98**Laboratory Reference #:** KJC 10334CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.066
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	N.D.
Cobalt	6010	0.1	N.D.
Copper	6010	0.0	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.017

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW09W071498

**Sampled:** 07/14/98

**Received:** 07/14/98

**Laboratory Sample Number:** 98070099

**Analyzed:** 07/15,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10334

CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.060
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium (VI)	6010	0.01	N.D.
Chromium Total	7196	0.01	0.015
Cobalt	6010	0.1	N.D.
Copper	6010	0.01	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	N.D.

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**  
ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water,

**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/20/98  
**Reported:** 07/21/98

**VOLATILE FUEL HYDROCARBONS (EPA 8015m)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Volatile Fuel Hydrocarbons (ppm)</b>
98070093	TMW05W071498	1.3
98070094	TMW06W071498	0.22
8070095	TMW04W071498	0.90
98070096	R071498	N.D.
98070098	TMW07W071498	1.2
98070099	TMW09W071498	0.14

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<b>Detection Limit:</b>	<b>0.05</b>
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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water

**Laboratory Reference #:** KJC 10338

**Sampled:** 07/14/98

**Received:** 07/14/98

**Analyzed:** 07/17/98

**Reported:** 07/21/98

**DIESEL ANALYSIS (EPA 8015M)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Extractable Hydrocarbons (ppm)</b>
98070093	TMW05W071498	N.D.
98070094	TMW06W071498	N.D.
98070095	TMW04W071498	N.D.
98070096	R071498	N.D.
98070098	TMW07W071498	N.D.
98070099	TMW09W071498	N.D.

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Detection Limit:	0.5
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Analyte reported as N.D. was not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**Sample Description:** Water, TMW05W071498  
**Laboratory Sample Number:** 98070093  
**Laboratory Reference #:** KJC 10334

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

ANALYTE	CAS NUMBER	DETECTION LIMIT µg/l	SAMPLE RESULTS µg/l
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW06W071498  
**Laboratory Sample Number:** 98070094  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

ANALYTE	CAS NUMBER	DETECTION LIMIT µg/l	SAMPLE RESULTS µg/l
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW04W071498  
**Laboratory Sample Number:** 98070095  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, R071498  
**Laboratory Sample Number:** 98070096  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water, TMW07W071498**Laboratory Sample Number:** 98070098**Laboratory Reference #:** KJC 10334**Sampled:** 07/14/98**Received:** 07/14/98**Analyzed:** 07/16/98**Reported:** 07/21/98**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW09W071498  
**Laboratory Sample Number:** 98070099  
**Laboratory Reference #:** KJC 10334

**Sampled:** 07/14/98  
**Received:** 07/14/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

ANALYTE	CAS NUMBER	DETECTION LIMIT µg/l	SAMPLE RESULTS µg/l
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

## QC DATA REPORT

Analysis : Volatile Organics by GC/MS (EPA 8260)

Date of Analysis : 07/15/98

Laboratory Sample No : 98070097

Laboratory Reference No : KJC 10334

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
Benzene	0.0	20	18	17	90	85	6
1,1-Dichloroethene	0.0	20	16	15	80	75	6
Trichloroethene	0.0	20	18	17	90	85	6
Toluene	0.0	20	18	17	90	85	6
Chlorobenzene	0.0	20	18	17	90	85	6

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Semi-Volatile Organics by GC/MS (EPA 8270)

Date of Analysis : 07/15/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10334

Analyte	R1 (ng)	SP (ng)	MS (ng)	MSD (ng)	PR1 %	PR2 %	RPD %
1,4-Dichlorobenzene	0.0	50	46	47	92	94	2
n-Nitroso-di-n-propylamine	0.0	50	50	49	100	98	2
1,2,4-Trichlorobenzene	0.0	50	48	48	96	96	0
Acenaphthene	0.0	50	42	40	84	80	5
Pyrene	0.0	50	45	44	90	88	2
Pentachlorophenol	0.0	100	83	79	83	79	5
4-Chloro-3-Methylphenol	0.0	100	72	70	72	70	3
2-Chlorophenol	0.0	100	85	84	85	84	1
Phenol	0.0	100	56	51	56	51	9

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Metals

Date of Analysis : 07/15,17/98

Laboratory Sample No : 98070093, OCA 100

Laboratory Reference No : KJC 10334

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Antimony	0.00	1.00	1.11	1.15	111	115	4
Arsenic	0.00	1.00	1.14	1.14	114	114	0
Barium	0.025	0.10	0.13	0.13	105	105	0
Beryllium	0.00	0.10	0.11	0.11	110	110	0
Cadmium	0.00	0.10	0.10	0.11	100	110	10
Chromium (Total )	0.015	0.10	0.12	0.12	105	105	18
Cobalt	0.00	0.10	0.11	0.11	110	110	0
Copper	0.00	0.10	0.11	0.11	110	110	0
Lead	0.00	1.00	1.03	1.05	103	105	2
Mercury	0.00	0.02	0.019	0.020	95	100	5
Molybdenum	0.00	1.00	1.04	1.06	104	106	2
Nickel	0.00	0.50	0.52	0.53	104	106	2
Selenium	0.00	1.00	1.11	1.12	111	112	1
Silver	0.00	0.50	0.46	0.46	92	92	0
Thallium	0.00	1.00	1.01	1.02	101	102	1
Vanadium	0.00	0.50	0.52	0.53	104	106	2
Zinc	0.00	0.10	0.12	0.12	120	120	0

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Organochlorine Pesticides (EPA 8080)

Date of Analysis : 07/16/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10335

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
4,4'-DDT	0.0	1.0	0.85	0.84	85	84	1

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Extractable Fuel Hydrocarbons (EPA 8015m)

Date of Analysis : 07/17/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10334

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	5.0	3.7	4.3	74	86	15

### Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$

PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$

RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : EPA 5030 / 8015m

Date of Analysis : 07/20/98

Laboratory Sample No : OCA100

Laboratory Reference No : KJC 10334

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	0.25	0.26	0.28	104	112	7

### Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$

PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$

RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$



# Analysis Request and Custody Record

ORANGE COAST ANALYTICAL, INC.

3002 Dow, Suite 532  
Tustin, CA 92780  
(714) 832-0064, Fax (714) 832-0067

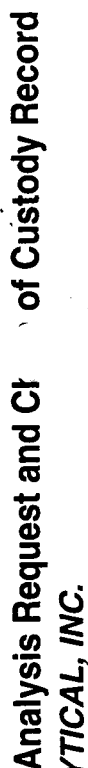
4620 E. Elwood, Suite 4  
Phoenix, AZ 85040  
(602) 736-0960 Fax (602) 736-0970

Lab Job No. \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_

REQUIRED TAT: \_\_\_\_\_

CUSTOMER INFORMATION				PROJECT INFORMATION				ANALYSIS/METHOD REQUEST				REMARKS/PRECAUTIONS			
COMPANY:	PROJECT NAME:	PROJECT NAME:	PROJECT NAME:	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	PRES.	ANALYSIS/METHOD REQUEST	TPH-G	TPH-D	RESIDUAL-8080	TITLE 221	HT. CEMENT *
SEND REPORT TO: Mr. Rick Pearson	NUMBER: 984006.00	LOCATION:	ADDRESS:												
ADDRESS: 2151 Montgomery Dr															
IRVING, CA 92612															
PHONE: 714/261-1577 FAX: 261-2134	SAMPLED BY: MB + MG														
SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	PRES.									
TMW-05W071498	3	7/14/98	1016	Water	40L WA HCL	HCL				X	X	X	X	X	X
TMW-05W071498	3	"	1018	"	1L AB	"					X	X	X	X	X
TMW-05W071498	1	"	1021	"	500 ml H2O3	H2O3							X	X	X
TMW-06W071498	3	"	1150	"	40L WA HCL	HCL				X	X	X	X	X	X
TMW-06W071498	3	"	1153	"	1L AB	"					X	X	X	X	X
TMW-06W071498	1	"	1155	"	500 ml P	H2O3							X	X	X
TMW-04W071498	3	"	1326	"	40L WA HCL	HCL				X	X	X	X	X	X
TMW-04W071498	3	"	1328	"	500 ml P	"					X	X	X	X	X
TMW-04W071498	1	"	1330	"	500 ml P	H2O3							X	X	X
RO71498	3	"	1441	"	40L WA HCL	HCL				X	X	X	X	X	X
RO71498	3	"	1443	"	1L AB	"					X	X	X	X	X
RO71498	1	"	1444	"	500 ml P	H2O3							X	X	X
TRIP Blank	1	"	"	"	40L WA HCL	HCL				X	X	X	X	X	X

Method of Shipment:		Reporting Format: (check)	
Received By:	Date/Time:	NORMAL	S.D. HMMD
Relinquished By: <i>[Signature]</i>	Date/Time: 7-14-98/1750	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Relinquished By:	Date/Time:	RWQCB	OTHER
Relinquished By:	Date/Time:	Sample Integrity: (check)	intact on ice



4620 E. Elwood, Suite 4

Phoenix, AZ 85040

(602) 736-0960 Fax (602) 736-0970

**Lab Job No:**

Page 2 of 2**REQUIRED TAT:**[illegible]



**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**LABORATORY REPORT FORM**

Laboratory Name: ORANGE COAST ANALYTICAL, INC.

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print) : Mark Noorani

Client: Kennedy Jenks Consultants

Project No.: Boeing

Project Name: 984006.00

Laboratory Reference: KJC 10338

Analytical Method: 8260, Metals, 8015g, 8015m diesel, 8080 Pesticides, 8270

Date Sampled: 07/15/98

Date Received: 07/15/98

Date Reported: 07/21/98

Sample Matrix: Water

Chain of Custody Received: Yes

Laboratory Director's Signature: 

RECEIVED

AUG 31 1998

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

RECEIVED/JENKS CONSULTANTS  
IRVINE, CA

**Sample Description:** Water, Trip Blank  
**Laboratory Sample Number:** 98070129  
**Laboratory Reference #:** KJC 10338

**Sampled:**  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

VOLATILE ORGANICS BY GC/MS (EPA 8260)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	0.5	N.D.
Bromodichloromethane	75-27-4	0.5	N.D.
Bromoform	75-25-2	0.5	N.D.
Bromomethane	74-83-9	1.0	N.D.
Carbon Disulfide	75-15-0	0.5	N.D.
Carbon tetrachloride	56-23-5	0.5	N.D.
Chlorobenzene	108-90-7	0.5	N.D.
Chlorodibromomethane	124-48-1	0.5	N.D.
Chloroethane	75-00-3	0.5	N.D.
2-Chloroethyl vinyl ether	110-75-8	0.5	N.D.
Chloroform	67-66-3	0.5	N.D.
Chloromethane	74-87-3	0.5	N.D.
1,1-Dichloroethane	75-34-3	0.5	N.D.
1,2-Dichloroethane	107-06-2	0.5	N.D.
1,1-Dichloroethene	75-35-4	0.5	N.D.
Trans 1,2-Dichloroethene	156-60-5	0.5	N.D.
1,2-Dichloropropane	78-87-5	0.5	N.D.
cis-1,3-Dichloropropene	10061-01-5	0.5	N.D.
trans-1,3-Dichloropropene	10061-02-6	0.5	N.D.
Ethylbenzene	100-41-4	0.5	N.D.
Methylene chloride	75-09-2	2.5	N.D.
Styrene	100-42-5	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
Tetrachloroethene	127-18-4	0.5	N.D.
Toluene	108-88-3	0.5	N.D.
1,1,1-Trichloroethane	71-55-6	0.5	N.D.
1,1,2-Trichloroethane	79-00-5	0.5	N.D.
Trichloroethene	79-01-6	0.5	N.D.
Trichlorofluoromethane	75-69-4	0.5	N.D.
Vinyl acetate	108-05-4	1.0	N.D.
Vinyl chloride	75-01-4	0.5	N.D.
Total Xylenes	1330-20-7	1.0	N.D.
Dichlorodifluoromethane	75-71-8	0.5	N.D.
cis-1,2,-Dichloroethene	156-59-2	0.5	N.D.
2,2-Dichloropropane	594-20-7	0.5	N.D.
Bromochloromethane	74-97-5	0.5	N.D.
1,1-Dichloropropene	563-58-6	0.5	N.D.
Dibromomethane	74-95-3	0.5	N.D.
1,2-Dibromoethane	106-93-4	0.5	N.D.

Orange Coast Analytical, Inc.

BOE-C6-0141228

**Sample Description:** Water, Trip Blank  
**Laboratory Sample Number:** 98070129  
**Laboratory Reference #:** KJC 10338

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	0.5	N.D.
Isopropylbenzene	98-82-8	0.5	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	0.5	N.D.
1,2,3-Trichloropropane	96-18-4	0.5	N.D.
Bromobenzene	108-86-1	0.5	N.D.
n-Propylbenzene	103-65-1	0.5	N.D.
2-Chlorotoluene	95-49-8	0.5	N.D.
1,3,5-Trimethylbenzene	108-67-8	0.5	N.D.
4-Chlorotoluene	106-43-4	0.5	N.D.
tert-Butylbenzene	98-06-6	0.5	N.D.
1,2,4-Trimethylbenzene	95-63-6	0.5	N.D.
sec-Butylbenzene	135-98-8	0.5	N.D.
4-Isopropyltoluene	99-87-6	0.5	N.D.
1,3-Dichlorobenzene	541-73-1	0.5	N.D.
1,4-Dichlorobenzene	106-46-7	0.5	N.D.
n-Butylbenzene	104-51-8	0.5	N.D.
1,2-Dichlorobenzene	95-50-1	0.5	N.D.
1-2-Dibromo-3-CPA	96-12-8	1.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	0.5	N.D.
Hexachlorobutadiene	87-68-3	0.5	N.D.
Naphthalene	91-20-3	0.5	N.D.
1,2,3-Trichlorobenzene	87-61-6	0.5	N.D.

Analyses reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	107
Toluene-d8	94
4-Bromofluorobenzene	101

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-11-W071598  
**Laboratory Sample Number:** 98070130  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

## VOLATILE ORGANICS BY GC/MS (EPA 8260)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	25	61
Bromodichloromethane	75-27-4	25	N.D.
Bromoform	75-25-2	25	N.D.
Bromomethane	74-83-9	50	N.D.
Carbon Disulfide	75-15-0	25	N.D.
Carbon tetrachloride	56-23-5	25	N.D.
Chlorobenzene	108-90-7	25	N.D.
Chlorodibromomethane	124-48-1	25	N.D.
Chloroethane	75-00-3	25	N.D.
2-Chloroethyl vinyl ether	110-75-8	25	N.D.
Chloroform	67-66-3	25	40
Chloromethane	74-87-3	25	N.D.
1,1-Dichloroethane	75-34-3	25	99
1,2-Dichloroethane	107-06-2	25	44
1,1-Dichloroethene	75-35-4	25	7,000
Trans 1,2-Dichloroethene	156-60-5	25	120
1,2-Dichloropropane	78-87-5	25	N.D.
cis-1,3-Dichloropropene	10061-01-5	25	N.D.
trans-1,3-Dichloropropene	10061-02-6	25	N.D.
Ethylbenzene	100-41-4	25	N.D.
Methylene chloride	75-09-2	125	N.D.
Styrene	100-42-5	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
Tetrachloroethene	127-18-4	25	N.D.
Toluene	108-88-3	25	N.D.
1,1,1-Trichloroethane	71-55-6	25	39
1,1,2-Trichloroethane	79-00-5	25	32
Trichloroethene	79-01-6	25	5,800
Trichlorofluoromethane	75-69-4	25	N.D.
Vinyl acetate	108-05-4	50	N.D.
Vinyl chloride	75-01-4	25	N.D.
Total Xylenes	1330-20-7	25	N.D.
Dichlorodifluoromethane	75-71-8	25	N.D.
cis-1,2,-Dichloroethene	156-59-2	25	140
2,2-Dichloropropane	594-20-7	25	N.D.
Bromochloromethane	74-97-5	25	N.D.
1,1-Dichloropropene	563-58-6	25	N.D.
Dibromomethane	74-95-3	25	N.D.
1,2-Dibromoethane	106-93-4	25	N.D.

**Sample Description:** Water, TMW-11-W071598

**Laboratory Sample Number:** 98070130

**Laboratory Reference #:** KJC 10338

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	25	N.D.
Isopropylbenzene	98-82-8	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
1,2,3-Trichloropropane	96-18-4	25	N.D.
Bromobenzene	108-86-1	25	N.D.
n-Propylbenzene	103-65-1	25	N.D.
2-Chlorotoluene	95-49-8	25	N.D.
1,3,5-Trimethylbenzene	108-67-8	25	N.D.
4-Chlorotoluene	106-43-4	25	N.D.
tert-Butylbenzene	98-06-6	25	N.D.
1,2,4-Trimethylbenzene	95-63-6	25	N.D.
sec-Butylbenzene	135-98-8	25	N.D.
4-Isopropyltoluene	99-87-6	25	N.D.
1,3-Dichlorobenzene	541-73-1	25	N.D.
1,4-Dichlorobenzene	106-46-7	25	N.D.
n-Butylbenzene	104-51-8	25	N.D.
1,2-Dichlorobenzene	95-50-1	25	N.D.
1-2-Dibromo-3-CPA	96-12-8	50	N.D.
1,2,4-Trichlorobenzene	120-82-1	25	N.D.
Hexachlorobutadiene	87-68-3	25	N.D.
Naphthalene	91-20-3	25	N.D.
1,2,3-Trichlorobenzene	87-61-6	25	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	113
Toluene-d8	96
4-Bromofluorobenzene	102

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-08-W071598  
**Laboratory Sample Number:** 98070131  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

## VOLATILE ORGANICS BY GC/MS (EPA 8260)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	25	62
Bromodichloromethane	75-27-4	25	N.D.
Bromoform	75-25-2	25	N.D.
Bromomethane	74-83-9	50	N.D.
Carbon Disulfide	75-15-0	25	N.D.
Carbon tetrachloride	56-23-5	25	N.D.
Chlorobenzene	108-90-7	25	N.D.
Chlorodibromomethane	124-48-1	25	N.D.
Chloroethane	75-00-3	25	N.D.
2-Chloroethyl vinyl ether	110-75-8	25	N.D.
Chloroform	67-66-3	25	38
Chloromethane	74-87-3	25	N.D.
1,1-Dichloroethane	75-34-3	25	96
1,2-Dichloroethane	107-06-2	25	42
1,1-Dichloroethene	75-35-4	25	7,000
Trans 1,2-Dichloroethene	156-60-5	25	120
1,2-Dichloropropane	78-87-5	25	N.D.
cis-1,3-Dichloropropene	10061-01-5	25	N.D.
trans-1,3-Dichloropropene	10061-02-6	25	N.D.
Ethylbenzene	100-41-4	25	N.D.
Methylene chloride	75-09-2	125	N.D.
Styrene	100-42-5	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
Tetrachloroethene	127-18-4	25	N.D.
Toluene	108-88-3	25	N.D.
1,1,1-Trichloroethane	71-55-6	25	37
1,1,2-Trichloroethane	79-00-5	25	37
Trichloroethene	79-01-6	25	5,700
Trichlorofluoromethane	75-69-4	25	N.D.
Vinyl acetate	108-05-4	50	N.D.
Vinyl chloride	75-01-4	25	N.D.
Total Xylenes	1330-20-7	25	N.D.
Dichlorodifluoromethane	75-71-8	25	N.D.
cis-1,2,-Dichloroethene	156-59-2	25	140
2,2-Dichloropropane	594-20-7	25	N.D.
Bromochloromethane	74-97-5	25	N.D.
1,1-Dichloropropene	563-58-6	25	N.D.
Dibromomethane	74-95-3	25	N.D.
1,2-Dibromoethane	106-93-4	25	N.D.

**Sample Description:** Water, TMW-08-W071598

**Laboratory Sample Number:** 98070131

**Laboratory Reference #:** KJC 10338

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	25	N.D.
Isopropylbenzene	98-82-8	25	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	25	N.D.
1,2,3-Trichloropropane	96-18-4	25	N.D.
Bromobenzene	108-86-1	25	N.D.
n-Propylbenzene	103-65-1	25	N.D.
2-Chlorotoluene	95-49-8	25	N.D.
1,3,5-Trimethylbenzene	108-67-8	25	N.D.
4-Chlorotoluene	106-43-4	25	N.D.
tert-Butylbenzene	98-06-6	25	N.D.
1,2,4-Trimethylbenzene	95-63-6	25	N.D.
sec-Butylbenzene	135-98-8	25	N.D.
4-Isopropyltoluene	99-87-6	25	N.D.
1,3-Dichlorobenzene	541-73-1	25	N.D.
1,4-Dichlorobenzene	106-46-7	25	N.D.
n-Butylbenzene	104-51-8	25	N.D.
1,2-Dichlorobenzene	95-50-1	25	N.D.
1-2-Dibromo-3-CPA	96-12-8	50	N.D.
1,2,4-Trichlorobenzene	120-82-1	25	N.D.
Hexachlorobutadiene	87-68-3	25	N.D.
Naphthalene	91-20-3	25	N.D.
1,2,3-Trichlorobenzene	87-61-6	25	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	113
Toluene-d8	95
4-Bromofluorobenzene	100

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-01-W071598  
**Laboratory Sample Number:** 98070132  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

## VOLATILE ORGANICS BY GC/MS (EPA 8260)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	5.0	N.D.
Bromodichloromethane	75-27-4	5.0	N.D.
Bromoform	75-25-2	5.0	N.D.
Bromomethane	74-83-9	10	N.D.
Carbon Disulfide	75-15-0	5.0	N.D.
Carbon tetrachloride	56-23-5	5.0	N.D.
Chlorobenzene	108-90-7	5.0	N.D.
Chlorodibromomethane	124-48-1	5.0	N.D.
Chloroethane	75-00-3	5.0	N.D.
2-Chloroethyl vinyl ether	110-75-8	5.0	N.D.
Chloroform	67-66-3	5.0	7.1
Chloromethane	74-87-3	5.0	N.D.
1,1-Dichloroethane	75-34-3	5.0	N.D.
1,2-Dichloroethane	107-06-2	5.0	N.D.
1,1-Dichloroethene	75-35-4	5.0	900
Trans 1,2-Dichloroethene	156-60-5	5.0	N.D.
1,2-Dichloropropane	78-87-5	5.0	N.D.
cis-1,3-Dichloropropene	10061-01-5	5.0	N.D.
trans-1,3-Dichloropropene	10061-02-6	5.0	N.D.
Ethylbenzene	100-41-4	5.0	N.D.
Methylene chloride	75-09-2	25	N.D.
Styrene	100-42-5	5.0	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	5.0	N.D.
Tetrachloroethene	127-18-4	5.0	N.D.
Toluene	108-88-3	5.0	N.D.
1,1,1-Trichloroethane	71-55-6	5.0	12
1,1,2-Trichloroethane	79-00-5	5.0	N.D.
Trichloroethene	79-01-6	5.0	540
Trichlorofluoromethane	75-69-4	5.0	22
Vinyl acetate	108-05-4	10	N.D.
Vinyl chloride	75-01-4	5.0	N.D.
Total Xylenes	1330-20-7	5.0	N.D.
Dichlorodifluoromethane	75-71-8	5.0	N.D.
cis-1,2-Dichloroethene	156-59-2	5.0	N.D.
2,2-Dichloropropane	594-20-7	5.0	N.D.
Bromochloromethane	74-97-5	5.0	N.D.
1,1-Dichloropropene	563-58-6	5.0	N.D.
Dibromomethane	74-95-3	5.0	N.D.
1,2-Dibromoethane	106-93-4	5.0	N.D.

**Sample Description:** Water, TMW-01-W071598

**Laboratory Sample Number:** 98070132

**Laboratory Reference #:** KJC 10338

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	5.0	N.D.
Isopropylbenzene	98-82-8	5.0	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	5.0	N.D.
1,2,3-Trichloropropane	96-18-4	5.0	N.D.
Bromobenzene	108-86-1	5.0	N.D.
n-Propylbenzene	103-65-1	5.0	N.D.
2-Chlorotoluene	95-49-8	5.0	N.D.
1,3,5-Trimethylbenzene	108-67-8	5.0	N.D.
4-Chlorotoluene	106-43-4	5.0	N.D.
tert-Butylbenzene	98-06-6	5.0	N.D.
1,2,4-Trimethylbenzene	95-63-6	5.0	N.D.
sec-Butylbenzene	135-98-8	5.0	N.D.
4-Isopropyltoluene	99-87-6	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
n-Butylbenzene	104-51-8	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
1-2-Dibromo-3-CPA	96-12-8	10	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
1,2,3-Trichlorobenzene	87-61-6	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	116
Toluene-d8	94
4-Bromofluorobenzene	104

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-02-W071598  
**Laboratory Sample Number:** 98070133  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**VOLATILE ORGANICS BY GC/MS (EPA 8260)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Benzene	71-43-2	250	N.D.
Bromodichloromethane	75-27-4	250	N.D.
Bromoform	75-25-2	250	N.D.
Bromomethane	74-83-9	500	N.D.
Carbon Disulfide	75-15-0	250	N.D.
Carbon tetrachloride	56-23-5	250	N.D.
Chlorobenzene	108-90-7	250	N.D.
Chlorodibromomethane	124-48-1	250	N.D.
Chloroethane	75-00-3	250	N.D.
2-Chloroethyl vinyl ether	110-75-8	250	N.D.
Chloroform	67-66-3	250	350
Chloromethane	74-87-3	250	N.D.
1,1-Dichloroethane	75-34-3	250	N.D.
1,2-Dichloroethane	107-06-2	250	N.D.
1,1-Dichloroethene	75-35-4	250	36,000
Trans 1,2-Dichloroethene	156-60-5	250	630
1,2-Dichloropropane	78-87-5	250	N.D.
cis-1,3-Dichloropropene	10061-01-5	250	N.D.
trans-1,3-Dichloropropene	10061-02-6	250	N.D.
Ethylbenzene	100-41-4	250	N.D.
Methylene chloride	75-09-2	1250	N.D.
Styrene	100-42-5	250	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	250	N.D.
Tetrachloroethene	127-18-4	250	N.D.
Toluene	108-88-3	250	N.D.
1,1,1-Trichloroethane	71-55-6	250	6,900
1,1,2-Trichloroethane	79-00-5	250	N.D.
Trichloroethene	79-01-6	250	34,000
Trichlorofluoromethane	75-69-4	250	N.D.
Vinyl acetate	108-05-4	500	N.D.
Vinyl chloride	75-01-4	250	N.D.
Total Xylenes	1330-20-7	250	N.D.
Dichlorodifluoromethane	75-71-8	250	N.D.
cis-1,2,-Dichloroethene	156-59-2	250	710
2,2-Dichloropropane	594-20-7	250	N.D.
Bromochloromethane	74-97-5	250	N.D.
1,1-Dichloropropene	563-58-6	250	N.D.
Dibromomethane	74-95-3	250	N.D.
1,2-Dibromoethane	106-93-4	250	N.D.

**Sample Description:** Water, TMW-02-W071598

**Laboratory Sample Number:** 98070133

**Laboratory Reference #:** KJC 10338

VOLATILE ORGANICS BY GC/MS (EPA 8260) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
1,3-Dichloropropane	142-28-9	250	N.D.
Isopropylbenzene	98-82-8	250	N.D.
1,1,2,2-Tetrachloroethane	79-34-5	250	N.D.
1,2,3-Trichloropropane	96-18-4	250	N.D.
Bromobenzene	108-86-1	250	N.D.
n-Propylbenzene	103-65-1	250	N.D.
2-Chlorotoluene	95-49-8	250	N.D.
1,3,5-Trimethylbenzene	108-67-8	250	N.D.
4-Chlorotoluene	106-43-4	250	N.D.
tert-Butylbenzene	98-06-6	250	N.D.
1,2,4-Trimethylbenzene	95-63-6	250	N.D.
sec-Butylbenzene	135-98-8	250	N.D.
4-Isopropyltoluene	99-87-6	250	N.D.
1,3-Dichlorobenzene	541-73-1	250	N.D.
1,4-Dichlorobenzene	106-46-7	250	N.D.
n-Butylbenzene	104-51-8	250	N.D.
1,2-Dichlorobenzene	95-50-1	250	N.D.
1-2-Dibromo-3-CPA	96-12-8	500	N.D.
1,2,4-Trichlorobenzene	120-82-1	250	N.D.
Hexachlorobutadiene	87-68-3	250	N.D.
Naphthalene	91-20-3	250	N.D.
1,2,3-Trichlorobenzene	87-61-6	250	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

Surrogate Recoveries %

Dibromofluoromethane	113
Toluene-d8	95
4-Bromofluorobenzene	101

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-11-W071598  
**Laboratory Sample Number:** 98070130  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/27/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW-11-W071598

**Laboratory Sample Number:** 98070130

**Laboratory Reference #:** KJC 10338

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-08-W071598  
**Laboratory Sample Number:** 98070131  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/27/98

**SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	5.8
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW-08-W071598

**Laboratory Sample Number:** 98070131

**Laboratory Reference #:** KJC 10338

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-01-W071598  
**Laboratory Sample Number:** 98070132  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/27/98

## SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)

ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW-01-W071598

**Laboratory Sample Number:** 98070132

**Laboratory Reference #:** KJC 10338

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-02-W071598  
**Laboratory Sample Number:** 98070133  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/27/98

## SEMI VOLATILE ORGANICS BY GC/MS (EPA 8270)

ANALYTE	CAS NUMBER	DETECTION Limit (ug/l)	SAMPLE RESULTS (ug/l)
Acenaphthene	83-32-9	5.0	N.D.
Acenaphthylene	208-96-8	5.0	N.D.
Aniline	62-53-3	5.0	N.D.
Anthracene	120-12-7	5.0	N.D.
Benzoic Acid	65-85-0	50	N.D.
Benzo (a) anthracene	56-55-3	5.0	N.D.
Benzo (b) fluoranthene	205-99-2	25	N.D.
Benzo (k) fluoranthene	207-08-9	25	N.D.
Benzo (g,h,i)perylene	191-24-2	25	N.D.
Benzo (a) pyrene	50-32-8	25	N.D.
Benzyl alcohol	100-51-6	50	N.D.
Bis(2-chloroethoxy)methane	111-91-1	5.0	N.D.
Bis(2-chloroethyl)ether	111-44-4	5.0	N.D.
Bis(2-chloroisopropyl)ether	39638-32-9	5.0	N.D.
Bis(2-ethylhexyl)phthalate	117-81-7	3.0	N.D.
4-Bromophenyl phenyl ether	101-55-3	5.0	N.D.
Butyl benzyl phthalate	85-68-7	5.0	N.D.
4-Chloroaniline	106-47-8	5.0	N.D.
2-Chloronaphthalene	91-58-7	5.0	N.D.
4-Chloro-3-methylphenol	59-50-7	5.0	N.D.
2-Chlorophenol	95-57-8	5.0	N.D.
4-Chlorophenyl phenyl ether	7005-72-3	5.0	N.D.
Chrysene	218-0109	5.0	N.D.
Dibenz(a,h)anthracene	53-70-3	25	N.D.
Dibenzofuran	132-64-9	5.0	N.D.
Di-N-butyl phthalate	84-74-2	5.0	N.D.
1,3-Dichlorobenzene	541-73-1	5.0	N.D.
1,4-Dichlorobenzene	106-46-7	5.0	N.D.
1,2-Dichlorobenzene	95-50-1	5.0	N.D.
3,3-Dichlorobenzidine	91-94-1	5.0	N.D.
2,4-Dichlorophenol	120-83-2	5.0	N.D.
Diethyl phthalate	84-66-2	5.0	N.D.
2,4-Dimethylphenol	105-67-9	5.0	N.D.
Dimethyl phthalate	131-11-3	5.0	N.D.
4,6-Dinitro-2-methylphenol	534-52-1	50	N.D.
2,4-Dinitrophenol	51-28-5	50	N.D.
2,4-Dinitrotoluene	121-14-2	5.0	N.D.
2,6-Dinitrotoluene	606-20-2	5.0	N.D.
Di-N-octyl phthalate	117-84-0	25	N.D.

**Sample Description:** Water, TMW-02-W071598

**Laboratory Sample Number:** 98070133

**Laboratory Reference #:** KJC 10338

SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270) (continued)

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION Limit (ug/l)</b>	<b>SAMPLE RESULTS (ug/l)</b>
Fluoranthene	206-44-0	5.0	N.D.
Fluorene	86-73-7	5.0	N.D.
Hexachlorobenzene	118-74-1	5.0	N.D.
Hexachlorobutadiene	87-68-3	5.0	N.D.
Hexachlorocyclopentadiene	77-47-4	5.0	N.D.
Hexachloroethane	67-72-1	5.0	N.D.
Indeno(1,2,3-cd)pyrene	193-39-5	25	N.D.
Isophorone	78-59-1	5.0	N.D.
2-Methylnaphthalene	91-57-6	5.0	N.D.
2-Methylphenol	95-48-7	5.0	N.D.
4-Methylphenol	106-44-5	5.0	N.D.
Naphthalene	91-20-3	5.0	N.D.
2-Nitroaniline	88-74-4	50	N.D.
3-Nitroaniline	99-09-2	50	N.D.
4-Nitroaniline	100-01-6	50	N.D.
Nitrobenzene	98-95-3	5.0	N.D.
2-Nitrophenol	88-75-5	5.0	N.D.
4-Nitrophenol	100-02-7	50	N.D.
N-Nitrosodiphenylamine	86-30-6	5.0	N.D.
N-Nitroso-di-N-propylamine	621-64-7	5.0	N.D.
N-Nitrosodimethylamine	62-75-9	5.0	N.D.
Pentachlorophenol	87-86-5	50	N.D.
Phenanthrene	85-01-8	5.0	N.D.
Phenol	108-95-2	5.0	N.D.
Pyrene	129-00-0	5.0	N.D.
1,2,4-Trichlorobenzene	120-82-1	5.0	N.D.
2,4,5-Trichlorophenol	95-95-4	5.0	N.D.
2,4,6-Trichlorophenol	88-06-2	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-11-W071598

**Sampled:** 07/15/98

**Laboratory Sample Number:** 98070130

**Received:** 07/15/98

**Analyzed:** 07/16,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10338

CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.066
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	N.D.
Cobalt	6010	0.1	N.D.
Copper	6010	0.0	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.019

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water, TMW-08-W071598**Sampled:** 07/15/98**Received:** 07/15/98**Laboratory Sample Number:** 98070131**Analyzed:** 07/16,17/98**Reported:** 07/21/98**Laboratory Reference #:** KJC 10338CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.020
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	N.D.
Cobalt	6010	0.1	N.D.
Copper	6010	0.0	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.013

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-01-W071598

**Sampled:** 07/15/98

**Received:** 07/15/98

**Laboratory Sample Number:** 98070132

**Analyzed:** 07/16,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10338

**CCR - METALS**

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.20
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium Total	7196	0.01	N.D.
Cobalt	6010	0.1	N.D.
Copper	6010	0.0	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.022

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-02-W071598

**Sampled:** 07/15/98

**Laboratory Sample Number:** 98070133

**Received:** 07/15/98

**Analyzed:** 07/16,17/98

**Reported:** 07/21/98

**Laboratory Reference #:** KJC 10338

CCR - METALS

<b>Analyte</b>	<b>EPA Method</b>	<b>Detection Limit mg/l</b>	<b>Analysis Results mg/l</b>
Antimony	6010	0.5	N.D.
Arsenic	6010	0.1	N.D.
Barium	6010	0.01	0.23
Beryllium	6010	0.01	N.D.
Cadmium	6010	0.01	N.D.
Chromium (VI)	6010	0.01	0.13
Chromium Total	7196	0.01	0.13
Cobalt	6010	0.1	N.D.
Copper	6010	0.0	N.D.
Lead	6010	0.1	N.D.
Mercury	7471	0.002	N.D.
Molybdenum	6010	0.1	N.D.
Nickel	6010	0.1	N.D.
Selenium	6010	0.1	N.D.
Silver	6010	0.1	N.D.
Thallium	6010	0.5	N.D.
Vanadium	6010	0.1	N.D.
Zinc	6010	0.01	0.029

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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water,**Laboratory Reference #:** KJC 10338**Sampled:** 07/15/98**Received:** 07/15/98**Analyzed:** 07/20/98**Reported:** 07/21/98**VOLATILE FUEL HYDROCARBONS (EPA 8015m)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Volatile Fuel Hydrocarbons (ppm)</b>
98070130	TMW-11-W071598	1.8
98070131	TMW-08-W071598	1.8
98070132	TMW-01-W071598	0.20
98070133	TMW-02-W071598	13

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Detection Limit:	0.05
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Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell

2151 Michelson #100

Irvine, CA 92612

**Client Project ID:** Boeing**Client Project #:** 984006.00**Sample Description:** Water**Laboratory Reference #:** KJC 10338**Sampled:** 07/15/98**Received:** 07/15/98**Analyzed:** 07/17/98**Reported:** 07/21/98**DIESEL ANALYSIS (EPA 8015M)**

<b>Laboratory Sample Number</b>	<b>Client Sample Number</b>	<b>Extractable Hydrocarbons (ppm)</b>
98070130	TMW-11-W071598	N.D.
98070131	TMW-08-W071598	N.D.
98070132	TMW-01-W071598	N.D.
98070133	TMW-02-W071598	N.D.

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Detection Limit:	0.5
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Analyte reported as N.D. was not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-11-W071598  
**Laboratory Sample Number:** 98070130  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-08-W071598  
**Laboratory Sample Number:** 98070131  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-01-W071598  
**Laboratory Sample Number:** 98070132  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

<b>ANALYTE</b>	<b>CAS NUMBER</b>	<b>DETECTION LIMIT µg/l</b>	<b>SAMPLE RESULTS µg/l</b>
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

**Kennedy Jenks Consultants**

ATTN: Mr. Rus Purcell  
2151 Michelson #100  
Irvine, CA 92612

**Client Project ID:** Boeing  
**Client Project #:** 984006.00

**Sample Description:** Water, TMW-02-W071598  
**Laboratory Sample Number:** 98070133  
**Laboratory Reference #:** KJC 10338

**Sampled:** 07/15/98  
**Received:** 07/15/98  
**Analyzed:** 07/16/98  
**Reported:** 07/21/98

**ORGANOCHLORINATED PESTICIDES (EPA 8080)**

ANALYTE	CAS NUMBER	DETECTION LIMIT µg/l	SAMPLE RESULTS µg/l
Aldrin	309-00-2	0.1	N.D.
alpha-BHC	319-84-6	0.2	N.D.
beta-BHC	319-85-7	0.2	N.D.
gamma-BHC	319-86-8	0.2	N.D.
gamma-BHC (Lindane)	58-89-9	0.2	N.D.
Chlordane	57-74-9	0.2	N.D.
4,4'-DDD	72-54-8	0.5	N.D.
4,4'-DDE	72-55-9	0.1	N.D.
4,4'-DDT	50-29-3	0.1	N.D.
Dieldrin	60-57-1	0.5	N.D.
Endosulfan I	959-98-8	0.5	N.D.
Endosulfan II	33212-65-9	0.3	N.D.
Endosulfan sulfate	1031-07-8	0.5	N.D.
Endrin	72-20-8	0.02	N.D.
Endrin aldehyde	7421-93-4	0.2	N.D.
Heptachlor	76-44-8	0.1	N.D.
Heptachlor epoxide	1024-57-3	0.2	N.D.
Methoxychlor	72-43-5	9.0	N.D.
Toxaphene	8001-35-2	0.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

## QC DATA REPORT

Analysis : Volatile Organics by GC/MS (EPA 8260)

Date of Analysis : 07/16/98

Laboratory Sample No : 98070129

Laboratory Reference No : KJC 10338

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
Benzene	0.0	20	18	19	90	95	5
1,1-Dichloroethene	0.0	20	19	19	95	95	0
Trichloroethene	0.0	20	20	19	100	95	5
Toluene	0.0	20	17	18	85	90	6
Chlorobenzene	0.0	20	19	19	95	95	0

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Semi-Volatile Organics by GC/MS (EPA 8270)

Date of Analysis : 07/16/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10338

Analyte	R1 (ng)	SP (ng)	MS (ng)	MSD (ng)	PR1 %	PR2 %	RPD %
1,4-Dichlorobenzene	0.0	50	46	46	92	92	0
n-Nitroso-di-n-propylamine	0.0	50	50	49	100	98	2
1,2,4-Trichlorobenzene	0.0	50	48	48	96	96	0
Acenaphthene	0.0	50	41	41	82	82	0
Pyrene	0.0	50	43	41	86	82	5
Pentachlorophenol	0.0	100	81	78	81	78	4
4-Chloro-3-Methylphenol	0.0	100	73	72	73	72	1
2-Chlorophenol	0.0	100	87	86	87	86	1
Phenol	0.0	100	58	52	58	52	11

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Metals

Date of Analysis : 07/15,17/98

Laboratory Sample No : 98070093, OCA 100

Laboratory Reference No : KJC 10338

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Antimony	0.00	1.00	1.11	1.15	111	115	4
Arsenic	0.00	1.00	1.14	1.14	114	114	0
Barium	0.025	0.10	0.13	0.13	105	105	0
Beryllium	0.00	0.10	0.11	0.11	110	110	0
Cadmium	0.00	0.10	0.10	0.11	100	110	10
Chromium (VI)	0.00	0.50	0.52	0.48	104	96	8
Chromium (Total )	0.015	0.10	0.12	0.12	105	105	0
Cobalt	0.00	0.10	0.11	0.11	110	110	0
Copper	0.00	0.10	0.11	0.11	110	110	0
Lead	0.00	1.00	1.03	1.05	103	105	2
Mercury	0.00	0.02	0.019	0.020	95	100	5
Molybdenum	0.00	1.00	1.04	1.06	104	106	2
Nickel	0.00	0.50	0.52	0.53	104	106	2
Selenium	0.00	1.00	1.11	1.12	111	112	1
Silver	0.00	0.50	0.46	0.46	92	92	0
Thallium	0.00	1.00	1.01	1.02	101	102	1
Vanadium	0.00	0.50	0.52	0.53	104	106	2
Zinc	0.00	0.10	0.12	0.12	120	120	0

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Organochlorine Pesticides (EPA 8080)

Date of Analysis : 07/26/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10338

Analyte	R1 (ppb)	SP (ppb)	MS (ppb)	MSD (ppb)	PR1 %	PR2 %	RPD %
4,4'-DDT	0.0	1.0	0.85	0.84	85	84	1

### Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : Extractable Fuel Hydrocarbons (EPA 8015m)

Date of Analysis : 07/17/98

Laboratory Sample No : OCA 100

Laboratory Reference No : KJC 10338

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	5.0	3.7	4.3	74	86	15

### Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$

PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$

RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

## QC DATA REPORT

Analysis : EPA 5030 / 8015m

Date of Analysis : 07/20/98

Laboratory Sample No : OCA100

Laboratory Reference No : KJC 10338

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
Hydrocarbons	0.0	0.25	0.26	0.28	104	112	7

### Definition of Terms :

R1 Results Of First Analysis

SP Spike Concentration Added to Sample

MS Matrix Spike Results

MSD Matrix Spike Duplicate Results

PR1 Percent Recovery Of MS:  $\{(MS-R1) / SP\} \times 100$

PR2 Percent Recovery Of MSD:  $\{(MSD-R1) / SP\} \times 100$

RPD Relative Percent Difference:  $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$



# Analysis Request and Custody Record

ORANGE COAST ANALYTICAL, INC.  
3002 Dow, Suite 532  
Tustin, CA 92780  
(714) 832-0064, Fax (714) 832-0067

4620 E. Elwood, Suite 4  
Phoenix, AZ 85040  
(602) 736-0960 Fax (602) 736-0970

Lab Job No. \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_

REQUIRED TAT: \_\_\_\_\_

CUSTOMER INFORMATION				PROJECT INFORMATION				ANALYSIS/METHOD REQUEST		REMARKS/PRECAUTIONS	
COMPANY:	PROJECT NAME:	NO. OF CONTAINERS	SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	PRES.	ANALYSIS/METHOD REQUEST	REMARKS/PRECAUTIONS	
KENNEDY TANKS	BOEING	1	TRIP BLANK	7/15/98	0730	WATER	40ml HCL	HCL	X	* TEST FOR HEX	
SEND REPORT TO: Mr. R. Recal	NUMBER: 98406-00	3	TMW-08-2071598	"	0733	"	40ml HCL	HEX	X	CHROMIUM ONLY	
ADDRESS: 2151 MICHAELSON	LOCATION: SUITE 100	3	TMW-11-2071598	"	0735	"	1LTR AQUE PLAS	HNO3	X	IF TOTAL CR	
IRVING, CA 92612	SAMPLED BY: MB 1 MCG	1	TMW-08-2071598	"	0819	"	40ml HCL	HCL	X	> 0.1 MG/L	
PHONE: 949 261-1577 FAX: 261-2134		3	TMW-08-2071598	"	0821	"	1LTR AQUE	---	X		
		1	TMW-08-2071598	"	0827	"	500ml PLAS	HNO3	X		
		3	TMW-01-2071598	"	1051	"	40ml HCL	HCL	X		
		3	TMW-01-2071598	"	1053	"	1LTR AQUE	---	X		
		1	TMW-01-2071598	"	1055	"	500ml PLAS	HNO3	X		
		3	TMW-02-2071598	"	1209	"	40ml HCL	HCL	X		
		3	TMW-02-2071598	"	1211	"	1LTR AQUE	---	X		
		1	TMW-02-2071598	"	1213	"	500ml PLAS	HNO3	X		
Total No. of Samples: 13 VOA / 12 Aque / 4 SPAL										Method of Shipment: DELIVERED	
Relinquished By: <i>Mr. R. Recal</i>	Date/Time: 7/15/98 - 1550	Received By:	Date/Time:	Reporting Format: (check) NORMAL _____ S.D. HMMMD _____ RWQCB _____ OTHER _____							
Relinquished By:	Date/Time:	Received By:	Date/Time:	Sample Integrity: (check) intact _____ on ice _____							